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CONTENTS *for* JANUARY-FEBRUARY, 1944

ORIGINAL ARTICLES

A Self-Aligning Method of Treating Fractures of the Long Bones. *Roger Anderson, M.D., Seattle, Washington* 1

Surgical Treatment of Tuberculosis and Malignant Diseases of the Respiratory System. *Chas. M. Griffith, M.D., Washington, D.C.* 9

Cirugía Arquitectónica de los Huesos (Architectonic Surgery of the Bones). *Alfonso Ortiz Tirado, M.D., Mexico, D.F., Mexico* 15

Cerebral Injuries. *Major Manuel Sanchez Garibay, M.D., Mexico, D.F., Mexico* 24

Una Modificación a la Técnica de Neumoventriculografía (Modification of the Technic of Ventriculography). *M. Vazquez, M.D., Mexico, D.F., Mexico* 28

Adult Tissue Extracts in Promotion of Wound Healing. *Felix Mandl, M.D., Jerusalem, Palestine* 34

Suturing Infected Wounds of the Face. *Henry D. Guilbert, M.D., Tegucigalpa, Honduras* 44

The Present Status of Functional Liver Tests. *Abraham O. Wilensky, M.D., New York, New York* 50

Restoration of Walking Capacity after Paralysis of Trunk and Leg Muscles. *E. Spira, M.D., Tel-Aviv, Palestine* 59

Argumosa's Two Methods of Blepharoplasty. *M. Márquez, M.D., Mexico, D.F., Mexico* 63

EDITORIALS

Postoperative Prognosis in Tumors of the Adrenal Cortex. *Max Thorek, M.D.* 69

Do Urinary Antiseptics Cure Urologic Conditions? *A. L. Wolbarst, M.D.* 70

FEATURES

Difficulties of a Chinese Army Surgeon. *J. Heng Liu, M.D.* 72

Chapter News 75

Book Reviews 81

Acknowledgments 84

Index to Advertisers XVI

General Information

The Journal of the International College of Surgeons is published bimonthly by the International College of Surgeons as its official Journal. It is a medium of publication for reports of research, clinical observations and experimental work in surgery. It serves also to acquaint members of the International College of Surgeons and all those interested in the advancement of surgery throughout the world with the activities of the College, which was founded in Geneva, Switzerland in 1935, and incorporated in Washington, D. C. in 1940.

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CONTENTS *for* MARCH-APRIL, 1944

ORIGINAL ARTICLES

Localization of Foreign Bodies. *James F. Brailsford, M.D., Birmingham, England* 85

Observations on Field Surgery. *Vladimir V. Lebedenko, M.D., Moscow, U.S.S.R.* 92

Paint-Splash Cervix in Leukemia. *Morris Weintrob, M.D., St. Albans, L.I., New York* 98

Shock. *W. M. Craig, M.D., Bethesda, Maryland* 103

The Conservation of Man Power for War. *Harold D. Corbusier, M.D., Plainfield, New Jersey* 108

War Wounds of the Skull and the Brain. *Franz A. Colmers, M.D., New York, New York* ... 116

Testicular Hormones and Their Influence on Prostatic Hypertrophy. *N. Kook, M.D., Jerusalem, Palestine* 129

Sarcomatous Degeneration of Fibroma. *I. Tractenberg, M.D., Brooklyn, New York* 134

Apreciaciones sobre la Pelvis de la Mujer Oaxaquena. *Manuel Canseco Landero, Oaxaca, Mexico* 144

Técnica Simplificada para la Dacriocistorrinostomía. *A. Torres Estrada, M.D., Mexico, D.F., Mexico* 147

EDITORIALS

Post-War International Coöperation. *Rudolph Nissen, M.D.* 160

Antireticular Cytotoxic Serum. *Max Thorek, M.D.* 161

FEATURES

Acknowledgments 102

Dr. William Henry Welch (1850-1934). *Solomon R. Kagan, M.D.* 133

Obituary 163

Chapter Activities 164

Book Reviews 167

Index to Advertisers I

General Information

The Journal of the International College of Surgeons is published bimonthly by the International College of Surgeons as its official Journal. It is a medium of publication for reports of research, clinical observations and experimental work in surgery. It serves also to acquaint members of the International College of Surgeons and all those interested in the advancement of surgery throughout the world with the activities of the College, which was founded in Geneva, Switzerland in 1935, and incorporated in Washington, D. C. in 1940.

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CONTENTS *for* MAY-JUNE, 1944

ORIGINAL ARTICLES

Activities of the Veterans Administration. *Brig. Gen. Frank T. Hines, M.D., Washington, D. C.* 171
Anesthesia in War Surgery. *Francisco Graña, M.D., Lima, Peru* 175
Present Treatment of Wounds and Burns. *Capt. Reynolds Hayden, M.D., District Medical Officer, Third Naval District* 179
Blast Injuries. *Comdr. Bartholomew Hogan, M.D., Washington, D. C.* 193
Mediastinal Wounds Caused by Explosives. *Emin Erkul, M.D., Istanbul, Turkey* 200
Tratamiento Electroquirúrgico del Cancer del Recto (Electrosurgical Treatment of Carcinoma of the Rectum). *Roffo, Angel H., M.D., and Carranza, Felipe F., M.D., Buenos Aires, Argentina* 202
Transplantation of Omentum in Closure of Cerebro-spinal Fluid Fistula. *Felix Mandl, M.D., Jerusalem, Palestine* 219
La Raqui-Analgesia Generalizada (The Generalization of Spinal Anesthesia). *Darío Fernández Fierro, M.D., Mexico, D. F., Mexico* 221
On the Occurrence of Pseudotumors in the Synovial Membrane of the Knee Joint. *H. Milwidsky, M.D., Jerusalem, Palestine* 227
A Hypernephroid Tumor of the Right Kidney, with a Metastatic Lesion in the Right Scapula. *Charles Edward Nagel, M.D., Great Falls, Montana* 235
Acute Cholecystitis. *Major Francis S. Mainzer, M.D., Huntingdon, Pa.* 241

EDITORIALS

The Making of a Surgeon. *M. T.* 248
Ribbon Gut in Surgery. *A. L. Wolbarst* 249

FEATURES

Surgeons and Events *Dr. Max Thorek* 191
Acknowledgments 220
News Items 240
Obituary 250
Chapter News 251
Book Reviews 255
Index to Advertisers XVIII

The Journal of the International College of Surgeons

Max Thorek, *Editor-in-Chief*

Associate Editors

Herman de las Casas
A. L. Wolbarst
Roscoe Jepson
Felix Mandl
Hamilton Bailey
Manuel A. Manzanilla
Rudolf Nissen

Eleanor Senn, *Editorial Assistant*

CONTENTS *for* JULY-AUGUST, 1944

ORIGINAL ARTICLES

Blast. *Mr. Hamilton Bailey, M.D., London, England* 257

Administrative Procedures in the Handling of the Discharge of Disabled Service Men. *Col. Lewis Sanders, Washington, D. C.* 263

Classification of War Wounds. *Mr. Basil Hughes, M.D., Bradford, England* 275

The Use of Plasma, Whole Blood and Human Serum Albumin by the Armed Forces. *Lt. Col. Douglas B. Kendrick, Washington, D. C.* 289

Gas Casualties. *Brig. Gen. Alden H. Waitt, Washington, D. C.* 296

Anesthesia during the Circumstances of War. *E. A. Rovenstine, M.D., New York, New York* 301

Desgarro Total de la Cara Posterior e Inferior de la Vejiga Fistula Rectovaginal (Total Rupture of the Posterior and Inferior Aspects of the Bladder—Rectovaginal Fistula). *Alejandro J. Pavlovsky, M.D., Buenos Aires, Argentina* 308

Free Muscle Transplantation in the Restoration of Lips and Cheek. *Antonio Prudente, M.D., São Paulo, Brazil* 312

EDITORIALS

The "Age Limit" Again. *Max Thorek* 315

Sulfacetimide in Urinary Tract Infection *M. T.* 316

FEATURES

Philadelphia—The Mecca of Surgeons 284

Surgeons and Events. *Dr. Max Thorek* 285

Obituary 317

Chapter News 318

Program Ninth National Assembly of the United States Chapter of the International College of Surgeons 322

Book Reviews ..... [illegible]

Index to Advertisers .....

General Information

The Journal of the International College of Surgeons is published bimonthly by the International College of Surgeons as its official Journal. It is a medium of publication for reports of research, clinical observations and experimental work in survey. It serves also to acquaint members of the International College of Surgeons and all those interested in the advancement of surgery throughout the world with the activities of the College, which was founded in Geneva, Switzerland in 1935, and incorporated in Washington, D. C. in 1940.

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CONTENTS *for* SEPTEMBER-OCTOBER, 1944

ORIGINAL ARTICLES

Rehabilitation, or the Salvaging of Manpower. *Fred H. Albee, M. D., New York, N. Y.* 337
Crush Syndrome. *Mr. Hamilton Bailey, M.D., London, England* 343
Naval Medical Research in Wartime. *Rear Admiral William L. Mann, M.C., U.S.N., Bethesda, Md.* 349
Cesarea Extraperitoneal en Distocias Provocadas por las Partes Blandas de la Pelvis y en Mujeres Infectadas (Indications for Extraperitoneal Cesarean Section in Certain Cases of Dystocia of the Soft Parts and in Infected Women). *Bernardo J. Gastélum, M.D., Mexico, D.F., Mexico* 355
Nearthrosis Following Comminuted Fracture of the Elbow Joint. *Felix Mandl, M.D., Jerusalem, Palestine* 362
Thoracic Injuries in Combat Zone. *Capt. C. M. Shaar, M.C., U.S.N.* 365
Army Rehabilitation. *Lt Col Cornelius E. Gorman, M.C., Washington, D. C.* 370
Una Nueva Técnica de Toracoplastia por Via Axilar (A New Technic of Thoracoplasty through the Axilla). *Mario Vergara Soto, M.D., Mexico, D.F., Mexico* 377
Abnormalities of the Female Genitalia. *Lt. Comdr. Morris Weintrob, M.C., USNR., Brooklyn, N. Y.* .... [illegible]
Appendiceal Coprolith Simulating Ureteral Calculus. *W. G. Coleman, M.D., Detroit, Mic* [illegible]
Physical Measures in the Rehabilitation Problem. *William D. McFee, M.D., Boston, M* [illegible]

EDITORIALS

Taking Stock of Ourselves. *Max Thorek* .... [illegible]
Changing Trends in Suture Material. *John A. Cannaday* .... [illegible]
Prevention and Treatment of Experimental Renal Obstruction from Sulfadiazine. *A. L. Wolbarst* .... [illegible]
The Russian Army Medical Personnel on the Battlefield. *[illegible] N. Burdenk* [illegible]

FEATURES

Acknowledgments .... [illegible]
Surgeons and Events. *Max Thorek* .... [illegible]
Chapter News .... [illegible]
Pen Pictures of Some Surgeons Recently Admitted to Fellowship... [illegible]
Obituary .... [illegible]
Book Reviews .... [illegible]

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CONTENTS *for* NOVEMBER-DECEMBER, 1944

ORIGINAL ARTICLES

Treatment of Surgical Shock and Embolism. *Frederick M. Allen, M.D., New York, N. Y.* 423

Ulcerative Leiomyoma of the Stomach. *Moses Behrend, M.D., Philadelphia, Pa.* 436

Ulcus Callosum Recti. *Felix Mandl, M.D., Jerusalem, Palestine* 447

Intra-abdominal Calcareous Tumors. *Enrique St. Loup B., M.D., La Paz, Bolivia* 452

Muscle Reinervation. *Lt. Comdr. Harvey E. Billig, M.D., Pasadena, Calif.* 457

The Surgical Significance of the Anatomical Layers of the Gastro-Intestinal Tract. *Walter C. Burket, M.D., Evanston, Ill.* 462

Use of the Praeputium Skin in "Structive" Surgery. *J. F. S. Esser, M.D., Monaco* 469

EDITORIALS

The "Atlantic Charter" of the International College of Surgeons. *Desiderio Román* 477

Following the Path of Aesculapius. *Miguel Lopez Esnaurrízar* 478

FEATURES

Surgeons and Events. *Max Thorek* 446

Book Reviews 468

The Nature of Medical Organization. *Morris Fishbein* 471

Chapter Activities 480

Assembly Activities 484

Index to *Journal,* Vol. VII 504

Index to Advertisers...

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A Self-Aligning Method of Treating Fractures of the Long Bones*

ROGER ANDERSON, M.D., F.A.C.S., F.I.C.S.
SEATTLE, WASHINGTON

THE displacing force of muscles has long been accepted as the main obstacle to reduction, and past methods of fracture treatment have been based on means of combating this muscle pull However, when the muscles are not treated as hostile forces but utilized as friendly agents, they provide the basis for a self-aligning technic. The requisite for converting muscles and fasciae into coöperating agents is a form of skeletal traction and skeletal countertraction in line with the axis of the fractured bone which permits free movement of the fragments while under traction.

TRACTION AND COUNTERTRACTION

It has been recognized that adequate traction will overcome shortening, and of late it has been generally accepted that the best means of obtaining such traction is by skeletal transfixation. However, in evaluating traction, consideration must be given to the fact that traction is no more effectual than its countertraction. Our experience has demonstrated that the most efficient form of countertraction is that obtained by dual skeletal transfixation of the superior fragment, and to be most effective the traction-countertraction pull must be in line with the axis of the fractured bone.

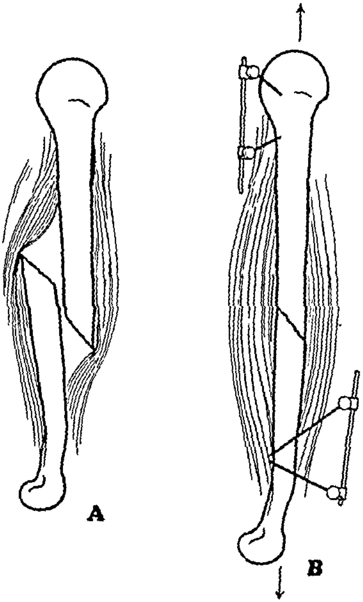

Fig. 1. When traction is exerted in the longitudinal axis of the fragments with countertraction applied *directly to the upper fragment, it will correct both the shortening and the general alignment. (For clarity only muscles on anterior and posterior sides of* humerus are illustrat

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*Presented at the Fourth International Assembly of the International College of Surgeons, New York City, June, 1943.

While the combined force of competent skeletal traction and countertraction will reëstablish length, it cannot in itself effect reduction. But if the traction force is applied in such a manner that the fragments are free to move while under traction, the muscles and fasciae will virtually cause a self-alignment of the fragments. Such realignment occurs because the fragments are literally enveloped in a tube of soft tissues, consisting of varying degrees of elastic muscles, flexible fasciae, and pliable soft tissue such as skin and blood vessels. When the traction and countertraction force is exerted in the longitudinal axis the sides of the resilient ıbe are tightened, molding the fragents into a straight line.

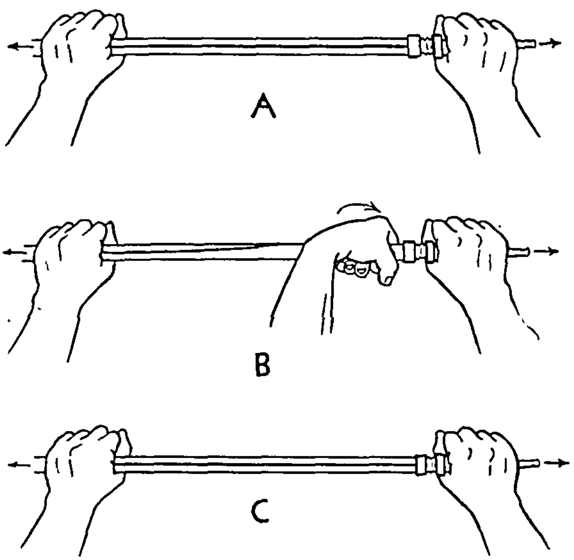


Fig. 2. A. Correction of rotational displacement by an untwisting action can be demonstrated by partially screwing on the nozzle of a rubber garden hose and then exerting traction by grasping the nozzle with one hand and pulling in the axis of the hose. while the other hand pulls in the opposite direction for countertraction. B. With the same amount of traction maintained, a second person twists the end of the hose close to the nozzle. C. Note that while the same amount of traction is being exerted, when the twisting grasp is released the hose, being elastic, will twist back into the original position. This is made possible because the hose is free to rotate at the nozzle.

ROTATION

The overcoming of shortening and the correction of angulation are but steps in reduction since there can be no reduction until there has been full correction of rotational displacements.

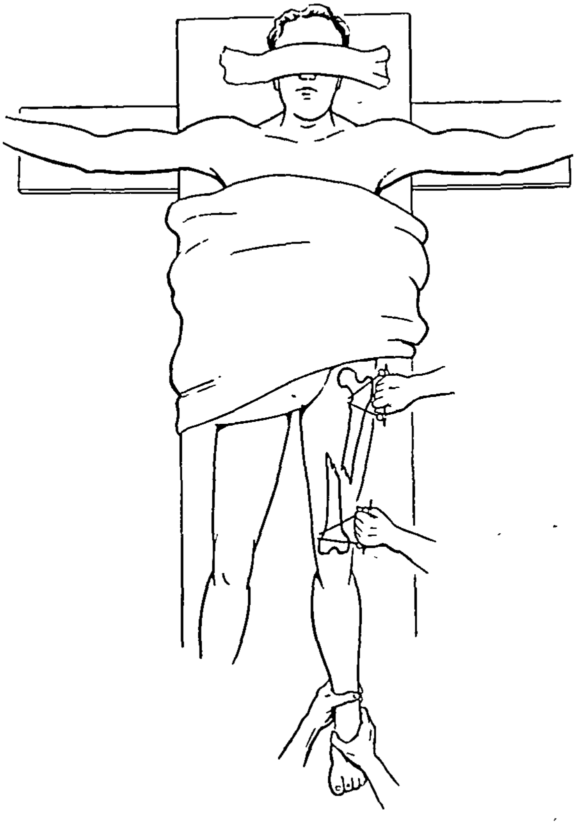


Fig. 3. Manual traction and countertraction. supplemented by manual manipulation of the fragments, is the simplest way of obtaining reduction.

The necessity of correcting a rotational deformity, if a poor functional result is to be avoided, has been stressed by Paul Magnuson and others for many years. Fortunately, anatomic rotational apposition can be readily achieved, provided the superior fragment is rotated and held in the normal position with the distal fragment free to rotate under traction that is in line with the longitudinal axis of the bone.

The explanation of this self-correction lies in the fact that a malrotation

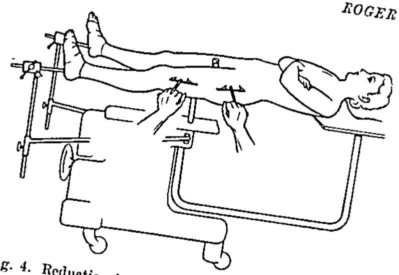


Fig. 4. Reduction by these principles can be achieved on any standard fracture table, provided the distal fragment is rotated and manipulated back into its normal position, and that after traction in the long axis of the distal fragment has been applied, reduction is completed by manually manipulating the superior fragment into contact with the distal face.

will cause a twisting effect on the tube of elastic soft tissues around the fracture site, with a resulting increased tension on the tube. This increased tension will cause the tube to "untwist" itself and return to the position of least tension, that of apposition, provided the distal fragment is left free to rotate as traction is being exerted.

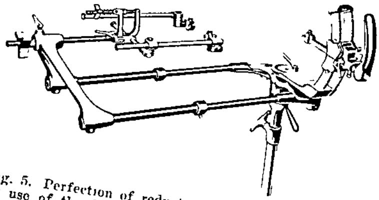


Fig. 5. Perfection of reduction can best be achieved by use of the free-rotating, self-aligning apparatus. Skeletal countertraction to the superior fragment is in line with the long axis of the fragment, leaving it free to move in both sidewise and vertical directions as traction is applied The rotatory displacement of the superior fragment is first mechanically corrected and held in the normal or mid position of rotation. The distal fragment is so held in the splint that even under traction this fragment can move easily in sidewise and vertical directions and also can be freely rotated upon the normal anatomic axis This inherent ability of the fragments to freely move while the traction-countertraction force is being exerted permits the resilient tube of muscles, fascia, and soft tissue to mold the fragments into alignment. Moreover, if indicated, each fragment may be manually manipulated and then mechanically held in any desired position.

REDUCTION

Traction force for reduction can be obtained in one of the following ways, as illustrated below: (1) manual; (2) fracture table; (3) self-aligning apparatus.

IMMOBILIZATION

After a reduction has been obtained, positive fixation is obviously imperative. A practical and direct means of fixation is achieved by utilizing the transfixions that were previously placed in each fragment for reduction purposes. Positive immobilization can be maintained by joining these two sets of V-transfixions in one of the following ways: (1) incorporating transfixions in a plaster splint or circular cast; (2) connecting pins with external rod or square tube; (3) combining [illegible]ter and [illegible]d

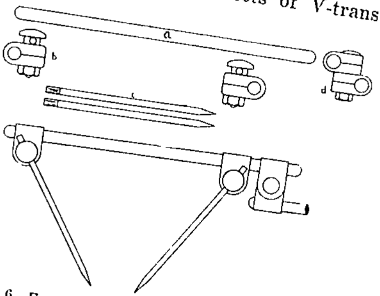
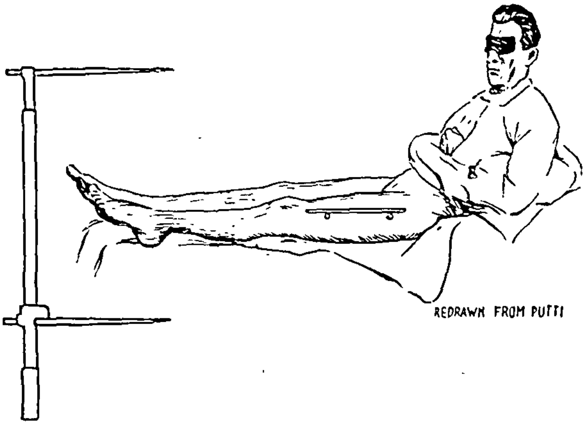


Fig 6. For castless immobilization a positive means of fixation can be fabricated in the desired shape and size to fit the individual patient A Round rod used for fracture rod or for fixation rod. B. Single pin-clamp. C. Steinmann pins or wires. D. Double rod-clamp Lower figure shows how from these pins, inserted at an angle to each other, a fracture unit is fabricated. Immobilization is secured by joining the superior and distal fracture units with a fixation rod. In compound fractures, if desired, a combination of plaster and rods may be used

technics (especially applicable for compound fractures).

When transfixions are incorporated, the plaster-of-Paris splint or cast need extend only the length of the fractured bone, leaving, in the case of a femur, both the knee and hip joints free to move. Drawbacks to plaster for simple fractures are the time it takes to apply and set up, the fact that it absorbs moisture, and that it is heavier and more cumbersome than the rod. Absorption at the ends of the bones in transverse fractures frequently calls for reimpacting the fragments. With plaster this takes a little longer, but can be easily accomplished by cutting and removing a thin, circular segment, like a piston ring, from over the site of the fracture.

The smooth rod supplies the most simple fixation means. Its advantage lies in quick application and ease of reëstablishing contact if absorption should occur, as in transverse fractures. The device is light, the rod, pins and clamps for a fractured femur weighing as little as twelve ounces. In spite of their lightness, they are sturdy enough to hold the fracture. After reduction has been obtained, the rod can be applied in a few minutes' time and the



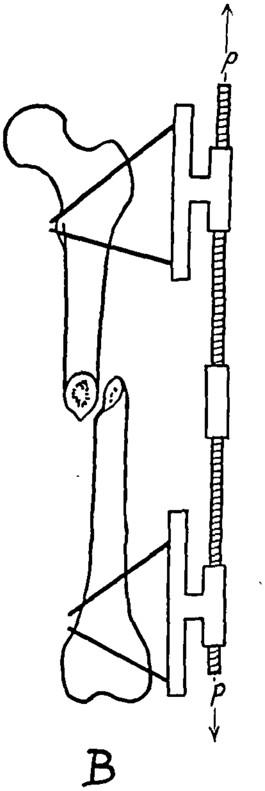


Fig. 7. A. In 1921 Putti reported in America on the use of his external traction rod, illustrated above. The first report ever made on the reduction and immobilization of fractures by the angular placement of two half-pins into each fragment was presented by the author before the American Academy of Orthopedic Surgeons in January, 1935. With the later method the patient could become ambulatory immediately. For instance, a patient with a fracture of the femur was able to get up and walk on crutches and move his hip and knee joints. In spite of the publication of these papers in the official journals of the American medical societies, some authors, through the lay and medical press, are leading the public to believe that this technic is a recent contribution of their own. B. An examination of this reported "new discovery" reveals it to be just a combination of Putti's fracture turnbuckle and the Roger Anderson half-pins. With this combination the threaded rod supplies traction, and the half-pins supply handles to manipulate and hold the fragments, but this combination cannot be used for rotation. In fact it prohibits any attempt to correct rotational deformity. Therefore, it cannot be used as a reduction splint. Indiscriminate use as advocated for a reduction splint can only lead to disaster. Moreover, as the fragments are not free to rotate or move on their axis while traction is being applied, the muscles are prohibited from effecting reduction. Furthermore, since the traction force is not exerted in line with the axis of the bone but to the lateral side, the more traction applied the more the tendency to angulation.

patient can be transported with safety. Moreover, as soon as he recovers from the anesthetic, he may be fully dressed and up on crutches. The whole field is always exposed for physical and radiographic examination.

TYPES OF FRACTURES

Although this technic was originated for fractures of the shaft, with some minor alterations it may be applied to all fractures of the long bones, whether they are transverse, spiral, oblique, comminuted or compound. This method also controls the troublesome fractures that extend into elbow, wrist and knee joints, os calcis fractures, and fracture-dislocations of the ankle. Furthermore, any type of transfixions, Steinmann through-and-through pins, Kirschner wires, or Roger Anderson half-pins, can be employed equally well and can be inserted from either side, at the desired angle, and any distance apart.

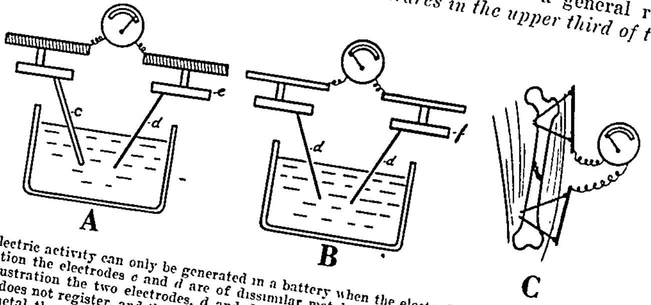


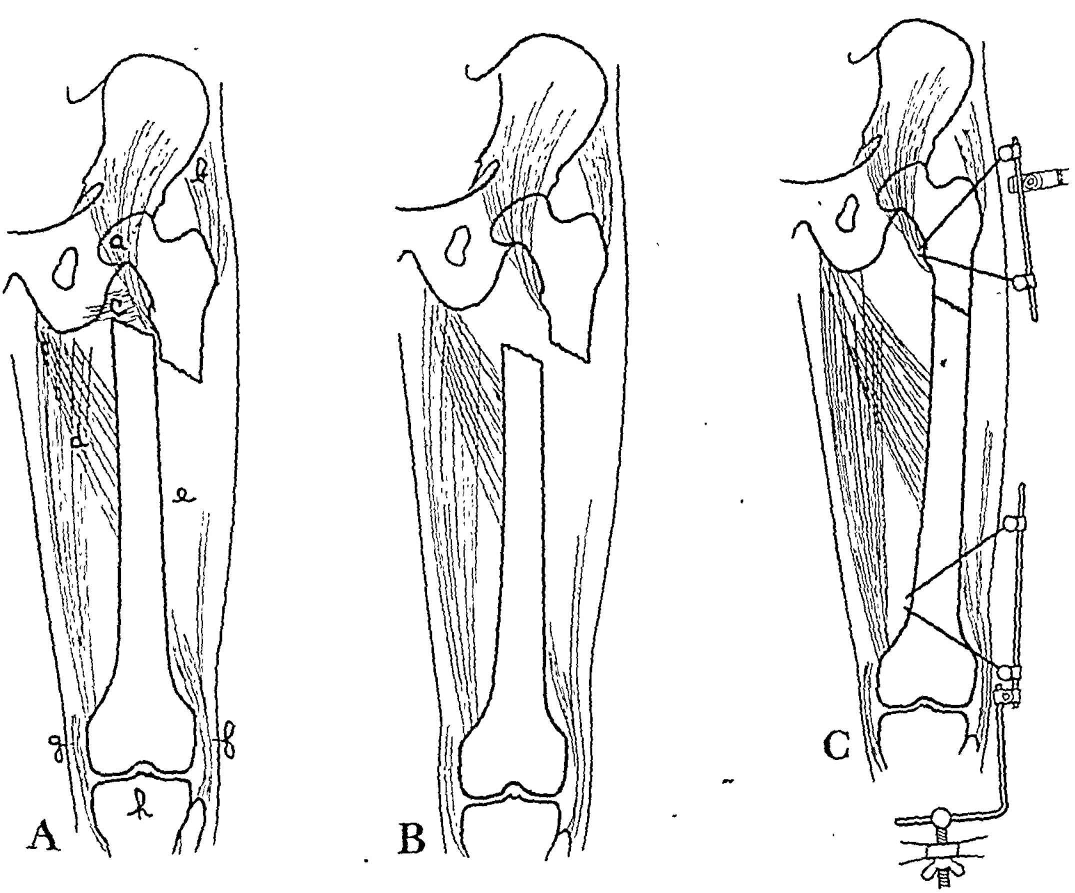
Fig. 8 A. Electric activity can only be generated in a battery when the electrodes are of different metals. In the above illustration the electrodes *c* and *d* are of dissimilar metals and current is registered on the galvanometer. B. In this illustration the two electrodes, *d* and *d*, are of the same metal so battery action cannot take place, galvanometer does not register, and there is no electrolysis. C. As the half-pins (electrodes) in the fragments are of the same metal there is no electrolysis. Therefore, as no current can be generated, there is no need to use plastic non-conducting pin holders or to give electrolysis clinical consideration.

ELECTROLYSIS

Insertion of two pins into each fragment has raised the question of electrolysis. This question can be quickly dismissed by a review of high school chemistry. To have a battery action it is necessary for the two electrodes to be of dissimilar metals, as reported by Stuck and Venable. An explanation of this action is diagrammed below.

SPECIFIC FRACTURES

While these aligning principles of treatment apply to all shaft fractures, there are a few that call for additional consideration. As a general rule with *fractures in the upper third of the shaft* it is best not only to rotate the superior fragment back into normal position but to bring it back into the normal axis of the limb and hold it there before applying traction. In *fractures in the center portion of the shaft*, only the rotational displacements of the superior fragment need be corrected before traction is applied, leaving the end of this superior fragment free to move in a vertical and in a sidewise direction. A maneuver that may be performed before traction is exerted is a manual [illegible] ation of the ends of both fr[illegible] and then into ant[illegible] media, which with a p[illegible] fter



ig. 9. A. In high femoral shaft fractures there is a relatively small amount of longitudinal muscle sheat irectly around the fracture site in comparison to the large group of muscles having their origin in the pelvi nd their insertion in the lower extremity. B. While the usual traction, if sufficient, can overcome the shortening pposition will not be accomplished. C. However, apposition can be achieved by using the V-transfixation t otate and to bring the upper fragment back into its normal position, and to hold it there. Then after axia raction has been applied, the superior end of the distal fragment is manually brought laterally back in line an reduction is achieved by the free rotating movement of the distal fragment.

sure the fragments are forced into the ormal position as traction is being xerted.

A *subtrochanteric fracture*, recognized as a stubborn fracture to manage because of the unusual muscle pull, can be controlled when these principles are employed, provided the superior fragment is first brought back into normal position and that, after traction has been exerted, the superior end of the distal fragment is brought back to the midline and fastened there.

Other fractures that have caused a good deal of difficulty are the *supracondylar* and the *femoral T-fracture into the knee joint.* Past methods o treating these fractures with the kne in flexion have helped to overcome th posterior displacement of the dista fragment, but this position of flexio prevented rotation of the distal frag ment, as illustrated below. However with the self-aligning technic, reductio is routinely effected with more ease i the knee is kept in extension.

Compound fractures: A combinatio of V-transfixation, fixation rods, and

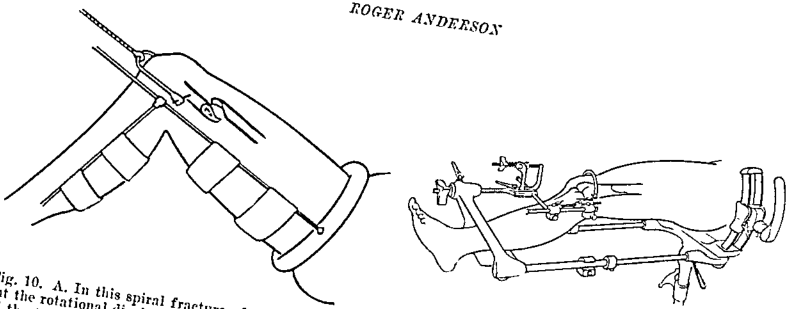


Fig. 10. A. In this spiral fracture of the distal third, traction as usually employed has overcome the shortening, but the rotational displacement still persists. No amount of lateral pressure or sidewise manipulation, or increase of the traction force, can effect a reduction. With the lower leg in flexion, position literally freezes the distal fragment, preventing rotation. B. But with this technic, control through dual transfixation corrects the posterior displacement of the distal fragment. Therefore, the knee will not need to be in flexion but can be kept extended. This position permits the distal fragment to rotate freely. Thus opposition can be easily obtained through unrestricted operation of the self aligning principles

plaster supplies a practicable approach for the treatment of compound fractures. All the advantages of Orr's method or Trueta's modification are utilized and their disadvantages are minimized. As the plaster becomes saturated and odorous, the cast can be removed and discarded with or without disturbing the original compound wound. This change of plaster can be done with safety as often as is indicated since the rod and the transfixions will securely hold the fragments in alignment until consolidation is complete. Meanwhile, the patient may be ambulatory and at an early date the contiguous joints may be exposed and thereafter moved with safety.

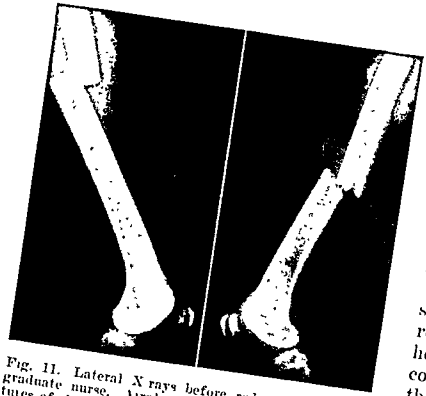


Fig. 11. Lateral X rays before reduction of E. C., graduate nurse. Airplane accident resulted in fractures of shafts of both femorae, complicated by intracapsular fracture of left patella

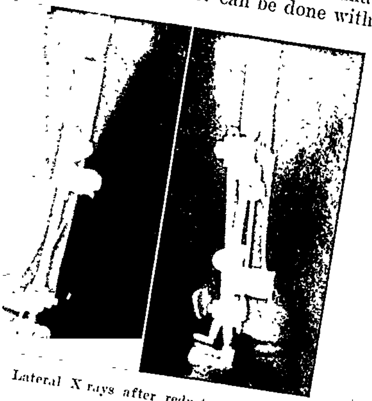


Fig. 12. Lateral X rays after reduction (5/31/43)

SUMMARY

Reduction can be accomplished with more ease and less danger when muscle pulls and fascial tensions are intelligently directed rather than vigorously combatted, provided the following two requisites are employed. First, skeletal traction and skeletal countertraction must be exerted in the longitudinal axis of the fractured bone, and second, one or both fragments should be free to move while traction is being exerted.

RÉSUMÉ

La réduction des fractures des os longs s'accomplit plus facilement et avec moins de dangers si les tractions musculaires et les tensions fasciales sont dirigées intelligemment plutôt que combattues vigoureusement. Il faut premièrement que la traction sequelettale soient exercées dans l'axe longitudinal de l'os fracturé; et secondement, que l'un ou les deux fragments soient mobilisables pendant que l'os est soumis à la traction et à la contra-traction.

SUMARIO

La reducción de fracturas de los huesos largos puede ser efectuada con mayor facilidad y menos riesgos cuando la tracción muscular y la tensión de la fascia son intelligentemente ejecutadas que empleando fuerza vigorosa, con tal que se sigan los requisitos siguientes: 1° Traccion esqueletal y traccion contra-esqueletal debe ser aplicada en le eje o axes longitudinal del hueso quebrado; y 2° uno o ambos fragmentos deben ser mobiles durante la acción de tracción y contratracción.

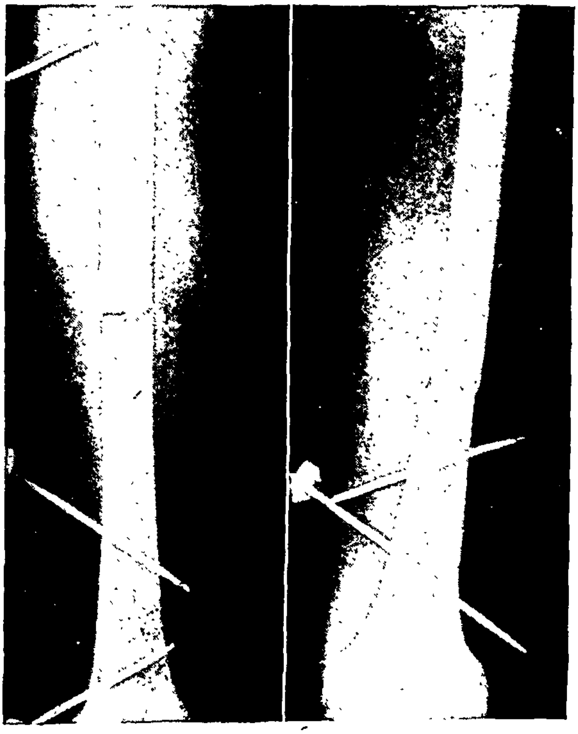


Fig. 13. A.P. X-rays after reduction (5/31/43).

Выводы

Вправливание переломов длинных костей делается легче и с уменьшением опасности, если напряжение мускулов и сухожилий употребляетсч целесообразно. Это возможно при соблюдении двух условий. Во-первых, скелетная вытяжка должна идти по продольной оси переломанной кости; во вторых, один или оба осколка должны свободны в то время, когда производится вытяжка.

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

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Surgical Treatment of Tuberculous and Malignant Diseases of the Respiratory System

CHAS. M. GRIFFITH, M.D.*
WASHINGTON, D C

IN our program of treatment of tuberculosis, surgical collapse in some form plays an important rôle. We utilize chest surgery as a supplement to the expectant treatment which, after a reasonable trial, has failed or, in the light of experience, is destined to fail to reëstablish a resistance balance against the disease.

With our patients able to "take the cure" for many months without cost to themselves, a more conservative approach to collapse therapy is practiced than were we confronted, like many state and municipal sanatoria, with a waiting list that demands a more rapid "turnover." We do not temporize with rest until the need for thoracic surgery becomes urgent, but after a meticulous study of the evolution and present status of the lungs is concluded, the surgical procedure most effective for the given stage is selected. Usually revocable measures in ascending grades of severity are employed, giving each procedure a reasonable period to prove its capacity to control the lesion.

In 1935 a "Surgical Collapse Board" was set up at each of the tuberculosis centers and at those general hospitals having tuberculosis departments. The Board consisted of five members: the clinical director, tuberculosis specialist, chest surgeon, roentgenologist and the ward physician in charge of the patient. The function of this board has been to study each tuberculous patient on admission, and at three months' intervals thereafter, for the purpose of deciding whether or not the patient should continue to receive passive treatment or, in the presence of appropriate indication, surgical collapse therapy. These boards are the modus operandi for insuring intensive treatment of the tuberculous process of each individual patient.

In addition, several chest surgery centers have been established at the following locations: Castle Point, New York; Oteen, North Carolina; Legion, Texas; Tucson, Arizona; San Fernando, California; Livermore, California; Portland, Oregon; Washington, D. C.; and Hines, Illinois. In the majority of these centers outstanding internationally known consultant chest surgeons are available for consultation and the actual operative surgery. At San Fernando, California, we are conducting a training course in thoracic surgery to which several of our general surgeons are assigned for intensive work in this type of collapse therapy. At a few of the chest surgery centers (notably, Oteen, North Carolina; Tucson, A

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*Medical Director, Medical and Hospital Service Veterans Administration

California; and Portland, Oregon) exceptionally well trained full-time chest surgeons are performing major chest surgery. Several of our younger full-time physicians resident at our chest surgery centers are being meticulously tutored for the purpose of acquiring proficiency in major thoracic surgery.

At all of our institutions treating tuberculous patients, the full-time surgeons and phthisiologists are competent to perform and are performing minor surgical collapse therapy, including the induction of pneumothorax, pneumoperitoneum and interruption of the phrenic nerve either by exeresis or clasia.

Patients in those institutions where major chest surgery is not available are transferred to the nearest chest surgery center for the indicated operative procedure, which has been recommended prior to the transfer by the surgical collapse board at the selected chest surgery center after a study of the clinical records and serial chest x-ray films of the patient.

For the twelve-month period, October 1, 1941, to September 30, 1942, the number of tuberculous patients treated by surgical collapse surgery in our thirteen tuberculosis hospitals averaged 20.2 per cent. During this period 7912 tuberculous patients were under treatment, of whom 70.5 per cent were far advanced, 23.7 per cent were moderately advanced and 5.7 per cent had minimal involvement. A marked preponderance of the far advanced cases with a majority of our patients in the fifth and sixth decades tends to lower the percentage of patients whose pulmonary condition is amenable to collapse therapy.

Inducted pneumothorax was utilized in 1079 cases, while some form of phrenic nerve interruption was made in 143. Thoracoplasty was undertaken in 105, intrapleural pneumolysis performed in 11, and extrapleural pneumolysis done in one case. The Monaldi operation was employed in 7 cases and oleothorax utilized in an equal number. Thirty-five patients were given collapse therapy by the induction of pneumoperitoneum and in 182, to effect satisfactory collapse, combined operations were required. In 63 cases complicated by empyema, rib resection or thoracotomy was necessary. In addition, 28 combined operations were performed at chest surgery centers connected with general hospitals.

The combined operations were listed as follows:

Pneumothorax and Jacobaeus	12
Pneumothorax and Monaldi	1
Pneumothorax and oleothorax	7
Pneumothorax and phrenic nerve	55
Penumothorax and pneumolysis	61
Pneumothorax and rib resection	5
Pneumothorax and thoracoplasty	14
Pneumothorax and thoracotomy	3
Pneumothorax, oleothorax and rib resection	1
Pneumothorax, phrenic nerve and Monaldi	1
Pneumothorax, phrenic nerve and pneumolysis	11
Pneumothorax, phrenic nerve and thoracoplasty	1
Pneumothorax, phrenic nerve and pneumoperitoneum	1
Pneumothorax, pneumolysis and thoracoplasty	1
Pneumothorax, pneumoperitoneum and thoracoplasty	1
Phrenic nerve and Monaldi	2
Phrenic nerve and pneumonotomy	1
Phrenic nerve and pneumoperitoneum	16
Pneumonotomy and rib resection	1
Phrenic nerve and thoracoplasty	2
Phrenic nerve, pneumoperitoneum and thoracoplasty	2
Thoracotomy and rib resection	1
Thoracotomy and thoracoplasty	3
Thoracoplasty and Monaldi	1
Thoracoplasty and pneumolysis	1

Pneumonotomy, thoracotomy and phrenic nerve	1
Pneumoperitoneum, Monaldi and thoracoplasty	1
Pneumoperitoneum and thoracoplasty	4
Total	211

Seven hundred and fourteen patients hospitalized for pulmonary tuberculosis, who were treated by collapse therapy, were discharged during the period October 1, 1941, to September 30, 1942. Of the 470 who received induced pneumothorax, 11 were discharged as arrested, 20 as apparently arrested, 5 with the clinical status of the pulmonary condition quiescent, 271 with the pulmonary tuberculosis still active but improved, 103 were unimproved and 60 died in hospitals. Of the 61 who had some type of phrenic nerve operation, 4 were discharged as arrested, 1 as apparently arrested and 3 as quiescent. There were 27 of this group discharged with the pulmonary condition still active but improved. Nine patients were unimproved on discharge and 17 died while hospitalized. Sixty-two patients who had thoracoplasties were discharged, of whom 5 died while in the hospital, 3 left the hospital unimproved, 50 were improved at time of discharge, in 2 the pulmonary disease had reached a quiescent stage and 2 cases were apparently arrested. Of 121 patients who received other types of collapse therapy, including those with combined operations who were discharged during this period, 27 had their hospitalization terminated by death, 24 were discharged unimproved and 70 were improved at time of discharge.

The immediate results of surgical collapse therapy in our hospitals during a twelve month period may be summarized briefly as follows:

Died while hospitalized	15.3	per	cent
Unimproved	19.6	"	"
Improved	58.1	per	cent
Quiescent	1.4	"	"
Apparently arrested	3.2	"	"
Arrested	2.4	"	"

Of a total of 192 patients hospitalized for nontuberculous respiratory disabilities and treated by chest surgery during the period October 1, 1941, to September 30, 1942, inclusive, 19.3 per cent died, 10.9 per cent were unimproved, 51.0 per cent improved and 18.8 per cent were cured. The disabilities for which these veterans received chest surgery included: abscess, chest wall; abscess, pulmonary; abscess, subdiaphragmatic; abscess, subphrenic; bronchiectasis; bronchiogenic carcinoma; cyst, pulmonary; empyema with bronchial fistula and subphrenic abscess; empyema with pulmonary abscess; emphysema; fistula, chest wall; foreign body; gunshot wound; diaphragmatic hernia; pleurisy with effusion; pleurisy, suppurative; pneumonia; pyopneumothorax; pneumothorax requiring decompression; teratoma and tumor, benign.

Rudolph, who performed 244 thoracoplastic operations while assigned as full time thoracic surgeon at two of our chest surgery centers, recently reviewed the records and reported on certain features of the cases operated on. Slightly more than one-half of the patients (67) were between the ages of 40 and 50 years, 15 were over 50 years of age, and the oldest patient operated on was 57. He reported but one death in this older group as either immediately or remotely related to surgical operations.

Every patient operated on by Rudolph had pulmonary lesions classified as far advanced, with cavitation and positive sputum. The total mortality rate for the entire series was 6.5 per cent. Of the eight deaths in the series, one patient died within twenty-four hours following the first-stage thoracoplasty, others died two weeks or more after operation.

The sputum conversion in Rudolph's series was reported as a whole slightly below the average of most other observers for the one year follow-up, although in several cases reported, less than six months had elapsed since operation and they could not be fairly considered in relation to end results.

Several years ago it became apparent that the mortality incident to cancer in the general population was increasing; consequently, the Veterans Administration took steps to make a thorough study of the disease in veterans. In the course of this study the coöperation of a number of specialists in the study and treatment of cancer was secured, among whom were such prominent specialists as Drs. James Ewing, Frank E. Adair, Max Cutler, Edwin Merritt, as well as a number of other men well known in the field of cancer.

As a result of this study, Tumor Clinics were organized at the following Veterans Administration Facilities: Hines, Illinois; Bronx, New York; Washington, D. C.; Atlanta, Georgia; Los Angeles, California; and Portland, Oregon.

Each Tumor Clinic is organized so that every patient is given the benefit of consultation by experts and consultants, as it has been found through years of experience that no single physician is alone competent to treat cancer, but the combined efforts of the surgeon, the x-ray specialist, the pathologist, the physicist, the biochemist and other specialists are deemed necessary to decide upon the diagnosis and treatment of each case.

The Tumor Clinics of the Veterans Administration are fully equipped and competently manned for the diagnosis and treatment of this disease. The clinics have on duty cancer specialists who have had extensive special training and experience in the diagnosis and scientific treatment of the disease. It may be pointed out here that Tumor Clinics have been established at strategic geographic points.

The treatment of cancer varies, depending primarily upon the site of the tumor and the kind of cancer, as well as the duration of the disease, although other factors may enter in. Another important consideration is that of treatment of choice; namely, should x-ray therapy, radium or surgery be instituted. Here again it is emphasized that cancer can be treated best in special hospitals where the necessary equipment and highly trained specialists are available.

An analysis of the number of patients with cancer of the lung, larynx and pharynx treated at Veterans Administration Facility, Hines, Illinois, from 1931 through 1942, showed an annual increase, but this is the result of the increase in the average age of the veterans of World War I. There was approximately the same number of patients admitted annually with cancer of the pharynx. This finding is probably due to the fact that cancer of the pharynx affects a younger age group than cancer of the larynx and lung. There were 693 patients treated for cancer of the lung at the Hines Facility during the twelve year period, 452 for cancer of the larynx and 54 for cancer of the pharynx during the same period, making a total of 1199 patients in the group of malignancies of the larynx, pharynx and lung. Sixty-two of the patients suffering from cancer of the lung received operative treatment, the operations of choice being exploratory thoracotomy in 41 instances, pneumonectomy in 13 cases, lobectomy in 5 cases and tracheotomy in 3 cases. In the group of 452 cases of cancer of the larynx, 244 operative procedures were done: namely, 152 tracheotomies, 57 laryngectomies, 13 laryngeal fissures, 12 gastrostomies, 8 neck dissections and 2 hemi-laryngectomies. In the treatment of 54 cases of cancer of the pharynx, 10 underwent tracheotomies and 1 gastrostomy. Of the total number of 1199 cases of cancer of the lung, larynx and pharynx, 317, or approximately 26 per cent, received operative treatment.

The Veterans Administration has not been content with the routine diagnosis and treatment of cancer but has also, through the stimulating efforts of General Frank T. Hines, the Administrator of Veterans' Affairs, secured an allocation of funds for continued scientific research. With these funds the Tumor Research Unit was established in the Hines Facility a number of years ago and is now in operation. Under the Research Division of Central Office and the personnel of the Tumor Research Unit at Hines, a number of studies are being conducted, with particular emphasis upon cancer of the skin and larynx. In addition, considerable research is being conducted to show the relationship of certain of the endocrine secretions to the cause of cancer and in which assayed methods are used to determine the quantity of endocrine secretions, as an early diagnostic test and also for the purpose of ascertaining the effective treatment of certain types of cancer.

Cancerogenic studies are also being conducted on animals in the hope that the nature of cancer production and ways of inhibiting cancer growth may be discovered.

At the Hines, Illinois, Facility the Administration has a radium emanation plant for producing radium gas or radon. Approximately one gram of radium is in solution and, by means of the emanation equipment, sufficient radon gas is manufactured for the treatment of all cancer patients at Hines. In addition, there are two grams of radium in an apparatus known as the "Radium Bomb." This apparatus is used for applying radium element in such conditions as cancer of the intestines, larynx and tonsils.

In each of the Tumor Clinics there is available high voltage x-ray equipment and a sufficient quantity of radium to take care of the needs of the veterans applying for treatment. There are, all told, approximately 3.9 gm. of radium and eleven high voltage x-ray machines in the Tumor Clinics of the Veterans' Administration.

RÉSUMÉ

Une revue est donnée de l'ouvrage accompli par le "Surgical Collapse Board" et les centres de chirurgie thoracique de l'armée.

Du premier octobre, 1941 au vingt septembre 1942, 7912 malades furent admis dans treize hôpitaux pour tuberculeux du Gouvernement. Vingt et deux dixièmes pour cent de ces malades furent traités par un pneumothorax artificiel vu par une thoracoplastie, 1079 cas par pneumothorax et 244 par thoracoplastie. Plus de la moitié des malades opérés par thoracoplastie étaient âgés de 40 à 50 ans.

Les cliniques pour tumeurs du Veterans Administration fournissent une analyse de 1199 cas traités au Hines Hospital pour cancer du poumon, du larynx et du pharynx. Trois cents dix-sept de ces cas furent traités opérativement.

SUMARIO

Al autor hace revista de los trabajos de la "Junta de Colapso Quirúrgico" y de la Cirugía Torácica en los varios centros de las Fuerzas Armadas.

De 7912 pacientes admitidos a los trece Hospitales para [illegible] Tub[illegible]losis,

del primero de octubre de 1941 al treinta de septiembre de 1942, 20.2 por ciento recibieron el tratamiento terapéutico de "Surgical Collapse" (Colapso Quirúrgico).

"Neumotorax-Artifical" fué utilizado en 1079 casos. En 244 toracoplastias ejecutadas por Rudolph, escasamente más de 50 por ciento fuéron en pacientes de 40 a 50 años de edad.

Las Clinicas de Tumores de la Administracion de Veteranos son discutidas y analisadas en el tratamiento de 1199 casos de cancer de los pulmones, laringe y faringe en el Hospital Hines. De este numero 317 recibieron tratamiento uirúrgico.

Выводы

Из 7912 больных принятых в тринадцати государственных больницах для лечения туберкулоза от перваго Октября, 1941-ого года, до тридцатого Сентября, 1942-ого года, 20.2 процента были подверженны хирургическому коллапсу. Пневмоторакс был употреблен в 1079-и случаях. Из 244-ех торакопластик сделанных Рудольфом, добрая половвина упала на пациентов возраста от 40 до 50-и лет.

В статье так-же находится анализ Клиники Опухолей Администрации Ветеранов. Из 1199 случаев рака легких, гортани и зева в Гайнс Госпитал 317 были подверженны операции.

DUES EXEMPTION FOR THOSE ENGAGED IN ACTIVE MILITARY SERVICE

At the meeting of the United States Chapter of the International College of Surgeons held in Chicago on March 30, 1941, it was unanimously agreed by the Executive Council that Associate Members, Members and Fellows of the International College of Surgeons are exempt from payment of dues during the period of active military service.

Cirugía Arquitectónica de los Huesos*

(Architectonic Surgery of the Bones)

ALFONSO ORTIZ TIRADO, M.D., F.I.C.S.
MEXICO, D. F.

SUMMARY

A classic discussion concerning the survival of the bone graft is presented. The author bases his belief on the premise that if it is possible to cultivate a tissue in an artificial solution, the survival of a graft in such an ideal medium as the human organism would seem simple. He describes the instruments used in bone graft surgery, which he refers to as "architectonic surgery of the bones." He also describes Albee's technic for taking the graft and presents 12 cases.

DESEO relatar en este trabajo mi experiencia personal sobre los casos qurúrgicos, de injertos ósesos en mi Clínica, durante estos dos últimos años.

La cirugía reconstructiva de los huesos, usando preferentemente el tejido óseo, como material de síntesis, de sostén, de amarre, de fusión, de transficción, de restitución de pérdidas de substancia, debera tener en la actualidad, toda la importancia que ha adquirido con las sabias enseñanzas, que Albee ha recopilado en 30 años interrumpidos de valiosa experiencia; lo que él modestamente llama "Carpintería de los huesos," Yo la titularía. "Cirugía Arquitectnica de los Mismos."

Existen de un modo general dos teorías que dominan el ambiente sobre el uso del tejido oseo vivo tomado del mismo individuo y durante el acto operatorio: los que creen, que el transporte de una porción de hueso que se segrega de sus medios de irrigación, para incluirse en un lecho de tejidos y en contacto con superficies óseas recien avivadas, constituye un injerto; los mismo que se hace con las plantas, conservando susceldillas la vitalidad, para sobrevivir a este cambio; los otros son los que admiten que el hueso segregado de la circulación muere y que solo sirve como un armazón de sostén, mientras son invadidos sus canalículos de Havers por los capilares y llemas carnosas del lecho donde se implanta.

Yo creo que el injerto que lleva en su interior celdillas formadoras de hueso como son los osteoblastos, puestos en un medio propicio de irrigación y temperatura, puedan conservar su vitalidad hasta que el injerto adhiere firmemente, con su vector, por un proceso semejante al callo en las fracturas.

Un razonamiento muy sencillo puede servirnos para no discutir más este asunto, que ha dado lug[illegible] a lar[illegible] tediosas polémi

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* Presented at the Third International Assembly of the International College of Surgeons held in Mexico City, August, 1941.

Carrel en sus medios conservadores artificiales puede hacer vivir durante años, tejidos cuyas células siguen viviendo y proliferando; con cuanta mayor razón podrán vivir colocados en medio ideal, como lo constituye el interior mismo de los tejidos afines, bañados por la misma linfa sanguínea y a la temperatura del organismo.

Solo la presencia de gérmenes podrá perturbar este proceso. De ahí que la técnica de la cirugía de los huesos requiera de cuidados esmerados de asepsia.

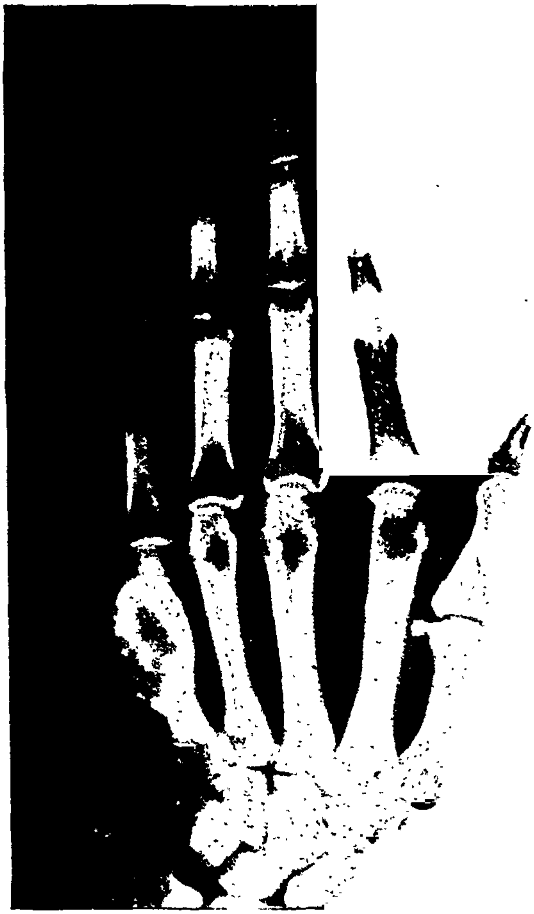

Fig. 1a. Tumor quístico del 5o metacarpio de la mano izquierdo.

En los casos que voy a relatar he procurado de preferencia sujetar los injertos ajustándolos a los vectores por medio de pequeñas cuñas sin hacer perforaciones que debiliten la resistencia y sin usar casi en ningún caso, ningún material extraño, salvo el catgut crómico en sus numeros gruesos. El tendón de Canguro produce tan frecuentement pequeños abscesos al nivel de los nudos que lo he ido abandonando casi totalmente.

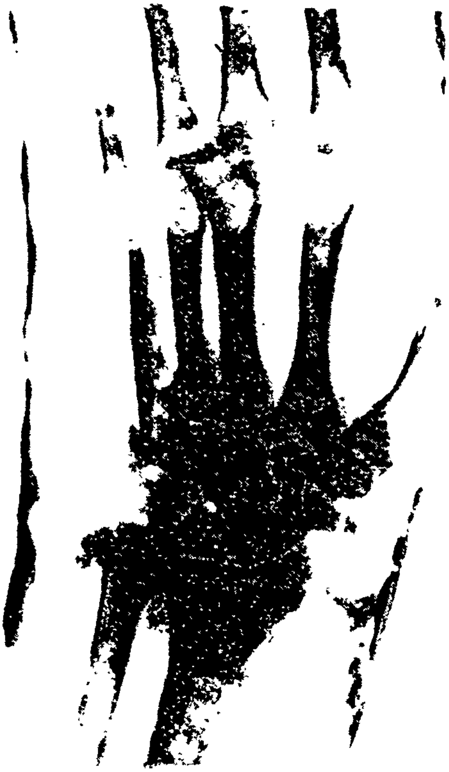

Fig. 1b. Total repulsión del 5o metacarpiano p un trasplante oseo.

Algunas palabras sobre el instrumental usado de preferencia en mis caso clínicos.

La mesa de extensión cuyo uso es absolutamente indispensable; que no podr ser substituída por el ayudante más experto, ha impreso a la técnica de l cirugía ortopédica un verdadero adelanto.

Las mesas en uso en mi Clínica son lo de Albee y la de S. Kalan Hawlay.

Lo sierra eléctrica que ha suprimid casi por completo el choque quirúrgic causado por las tomas de los injertos con cincel y martillo es, sin.dura, el adelanto más importante realizado para mejorar la técnica.

Las sierras que uso son: la de Albee con motor portatil dentro del mismo cuerpo del instrumento, con sierras paralelas para tomar el injerto en un solo trazo, el torno para hacer las clavijas, perforadores, etc.

La sierra de Moorhead con motor separado que mueve tallo flexible y que le imprime a la sierra montada en el mago esterilizable una gran velocidad, da un corte neto y preciso.

La pequeña sierra montada en el mango de revolver con motor externo del Pantostad es excelente para perforar y limar superficies.

El aditamento adjustable a la sierra de Albee, con el cual se puede hacer corte vertical.

El Resto del instrumental es ya ampliamente conocido:

Cinceles
Martillo
Elevadores de periostio
Separadores
Guvias
Legras
Pinzas de Lambot
Cucharillas
Conductors para cinchos metalicos, etc.
Perforadores para alambres de Kishner.

No menciono más nombres, pues sería interminable la lista de los instrumentos que toman el nombre de los autores que les hacen pequeñas modificaciones y perfeccionan las ya conocidas.

TÉCNICA

La técnica para tomar el injerto comprende dos maniobras igualmente importantes:

Primera.—Selección del sitio más propicio y preparación de él, para que las sierras no encuentren ningún tropiezo.

Segunda.—La toma propiamente dicha, empleando las sierras paralelas o la sierra única que corta y completa la acción de las anteriores.

La selección del lugar más a propósito para una buena toma es indudablemente la cara- antero-interno de la tibia que nos puede dar injertos hasta de treinta centímetros de largo en un adulto de mediana estatura.

Las incisiones de la piel en esta región se deben hacer ligeramente curvas, con el objeto de que queden cubiertos el surco que deja el injerto por el espesor del colgajo de piel, tejido celular y aponeurosis superficial; pues en otra forma habría el peligro de que se fistulizara la herida, o cuando menos se retardara el período de cicatrización.

Descubierta la cara tibial escogida, y despegado el colgajo cutaneo que deberá ser tomado con pinzas para que en ningún momento interrumpa el camino de sierra, se traza ya con una pequeña regla metálica el tamaño y forma del injerto sobre la superficie ósea, a la cual se le deja integramente adherido el periostio.

Se retiran todas las compresas cercanas al camino de la sierra, pues es peligroso dejarlas al alcanze de los dientecillos que jiran a alta velocidad. Las manos del ayudante deberán igualmente quedar a conveniente distancia.

Con el objecto de enfriar la sierra y evitar así la calcinación del injerto (que disminuye grandemente su vitalidad) el ayudante deberá verter suero fisiológico frío que puede ser goteado con una perita de caucho en el sitio donde la sierra va cortando y sobre la sierra misma.

Se hace recorrer a las sierras todo el trazo y haciendo una ligera presión se repasará dicho trazo hasta hacerlas penetrar en el espesor de la tabla tibial.

Para cortar los extremos se puede emplear la sierrita más pequeña o hacer un corte oblícuo con la sierra única.

Concluído el aserraje co
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lo general haciendo palanca por un estremo, el injerto podrá ser separado facilmente.

En una compresita húmeda con suero caliente, será envuelto el injerto manejándolo lo menos posible.

Será suturada la herida, no importando que el surco queda lleno de sangre coagulada, pues éstos coágulos servirán para la cicatrización del hueso.

Un vendaje ligeramente compresivo bastará para contener la hemorragia producida.

En esta forma el injerto va provisto de sus elementos esenciales, perióstio adherido; hueso propiamente dicho con sus canalículos de Havers íntegros y endostio y medula.

En estas condiciones y salvo que haya necesidad de incuvar o modificar la forma del injerto, podrá ser sepultado dentro del lecho preparado y ajustado en la forma que menciono al principio de este artículo, o bien mantenido con suturas (Catgut Crómico) en sus números gruesos de preferencia.

REPORTES DE LOS CASOS

Caso No. 1: P. R. D.—Diagnóstica.—Fractura por aplastamiento del cuerpo de la 12a vertebra dorsal. Fracturas simples de costillas sin lesión pulmonar. Fractura del cuello de la escápula derecha. Ingresó abril 15 de 1941, salió junio 30 de 1941.

Generales.—Mexicano, masculino, casado, 40 años, chofer.

Molestias Principales.—Gripa en 1918.

Estado Actual.—A principios de enero de este año tuvo un accidente automovilístico a resultas del cual se produjo las fracturas arriba mencionadas. Las fracturas de las costillas y de la escapula curaron sin dejar secuelas pero la de la columna dejó dolor lumbal bajo la cifosis y tiene tendencia a hacerse más pronunciada.

Examen Físico.—El vertice de la jiba corresponde a la duodécima apofisis espino dorsal. Dolor provocado por percusión en el mismo sitio.

Pulso.—80; respiraciones 18; Presión sanguínea 130-75; temperatura 36. 2 C.

Pruebas de Laboratorio.—Wassermann negativo. El resto normal.

Rayos X.—Fractura simple per aplastamiento del cuerpo de la 12a. dorsal.

Tratamiento. Primero se intentó reducir la fractura por hiperextensión y se colocó un corsé enyesado. Después se procedió a operarlo al través de una ventana abierta en la cara posterior del aparato, bajo [illegible] [illegible]. Y consistiendo la operación en la toma de un injerto de la tibia y su colocación en las apofisis espinosas de las tres últimas dorsales y las dos primeras lumbares, según técnica del Dr. Albee.

Evolución.—Normal. Alta a los dos meses. Condiciones generales y locales buenas. El injerto prendió perfectamente como lo demuestran las últimas radiografías.

Caso No. 2: P. C.—Diagnóstico.—Quiste oseo 5o. metacarpiano derecho.

Generales.—28 años, femenino, soltera.

Molestias Principales.—Dolor. Ligera dificultad en los movimientos del dedo meñique.

Antecedentes Personales.—Paludismo y tifoidea hace varios años.

Estado Actual.—Hace algunos meses notó la aparición de una tumoración en el dorso de la mano derecha, hacia el borde interno, poco dolorosa y que fué creciendo muy lentamente. Dificultad para mover el dedo pequeño. En el exámen físico se encontró una tumoración limitada, de consistencia osea, forma elíptica, formando cuerpo con el 5o metacarpio. Radiologicamente se encontró un quiste localizado a la diáfisis del metacarpiano.

Tratamiento.—Bajo anestesia local se resecó subperiósticamente la porción que comprendía el quiste, sin abrir las articulaciones vecinas. En el lugar de la porción de hueso extirpada se colocó un injerto, cobriéndolo con el periostio y tejidos blandos.

Evolución.—La recuperación funcional fué perfecta y las radiografías revelan una restitución anatómica completa.

Caso No. 3: R. G.—Diagnóstico.—Pérdida de sustancias del tercio medio del húmero derecho.

Generales.—35 años, masculino, casado, policía.

Molestias Principales.—Impotencia funcional completa del miembro superior derecho.

Antecedentes Personales.—Infección luética en 1934.

Operaciones Anteriores.—En 1935 le dieron un balazo en el brazo derecho. La primera operación fué hecha para extraer el proyectil y pequeñas esquirlas. La segunda para hacer una osteosíntesis con alambre de plata y la tercera para quitar el alambre.

Estado Actual.—Cuando fué operado para quitar el alambre fué porque se había infectado el hueso. Al fín cedió la infección pero quedó la pérdida de sustancia ya mencionada.

Examen Físico.—La circulación y la inervación abajo del codo se encuentran perturbadas. Los movimientos activos del antebrazo y la mano son sumamente difíciles y limitados. Ligera anquilosis del codo.

Análisis Laboratorio.—Wassermann ligeramente positivo. Resto de la pruebas normal.

Rayos X: pérdida de casi todo el tercio medio de la diáfisis.

Tratamiento.—Un injerto de unas 6 pulgadas se tomó de la tibia izquierda y se empotró en los extremos libres de la diáfisis, después de haberlos liberado y extirpado el tejido cicatricial. Se aplicó aparto enyesado de aereoplano.

Evolución.—Normal. El paciente fué visto por última vez en enero de este año. La recuperación funcional era casi completa, salvo por la anquilosis incompleta del codo. Las radiografías mostraron la perfecta unión del injerto y aún su engrasamiento.

Caso No. 4: F. V.—Diagnóstico.—Pérdida de sustancia del tercio medio de la diáfisis radial derecha, de origen traumático.

Generales.—25 años, policía, masculino.

Médico Encargado.—Dr. Alfonso Ortiz Tirado.

Molestias Principales.—Impotencia funcional com-

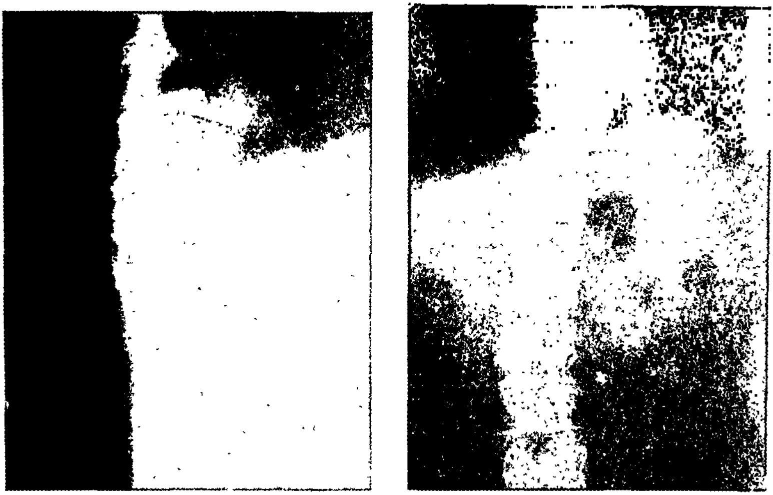

Fig. 2. Fractura por aplastamiento del cuerpo de la 12a vertebra dorsal.
a. Vista lateral b. Vista dorsal

pleta del antebrazo y de la mano derecha.

Antecedentes Personales.—Gonorrea hace 5 años. Bebe ocasionalmente.

Operaciones Anteriores.—Primera operación para drenar la herida infectada producida por la bala que hizo una fractura con minuta y expuesta del radio

Estado Actual—La Infección de que se acaba de hablar curó pero dejó una pérdida de sustancia de casi todo el tercio medio de la diáfisis. En estas con- [illegible] funcional del ante- [illegible] respiraciones 20, presión sanguínea 125-65

Pruebas de Laboratorio—Wassermann negativo. Otras pruebas normales

Tratamiento.—Incisión de 7 pulgadas sobre el borde externo del antebrazo derecho, desde un poco abajo del codo hasta encima de la muñeca. Se liberaron los cabos radiales. Se quitó el tejido cicatricial. Un injerto tomado de la tibia se introdujo en los cabos del radio para reemplazar a la diáfisis pérdida. La herida se suturó y cubrió de la manera usual, y la operación terminó con la aplicación de un enyesado de la mitad del brazo a la palma de la mano.

Evolución—*Normal Radiografías tomadas dos meses más tarde revelaron que el injerto había prendido admirablemente* Además la recuperación funcional notable

Caso No. 5. A M.DeL—Diagnóstico. Mieloplaxoma de la epífisis superior de la tibia derecha.

Generales.—Mexicana, casada, 30 años de edad, *labores de su hogar.*

Molestias Principales—Dolor en la rodilla, disminución de la motilidad en la rodilla en parte por dolor y en parte por el aumento de volúmen de la extremidad superior de la tibia.

Antecedentes Personales—Ha tenido dos hijos que viven y son sanos.

Estado Actual.—A principios de 1937 le empezó a doler la rodilla derecha y poco después le empezó a crecer, principalmente abajo de la rótula Siguió creciendo poco a poco hasta alcanzar más o menos imposible extenderla completamente como la del lado sano. El dolor aumentó pero no proporcionalmente.

Examen Físico y Radiológico.—Se nota un tumor abajo de la rótula esferoidal, duro y de superficie regular La piel es normal salvo la presencia de gruesas venas. Las radiografías revelan la total destrucción de la epífisis tibial superior, sin ataque a la articulación misma, así como marcada decalcificación de la rótulo y la epífisis inferior de femur. Radiografías de otras partes del esqueleto 10 muestran normal.

Análisis de Laboratorio—Pruebas preoperatorias normales La biopsia rápida durante la operación reveló tratarse de un tumor quístico formado en su *mayoría por mieloplaxas.*

Tratamiento.—Por medio de una larga incisión anterior se excindió la pared anterior del quiste parcialmente y el contenido fué raspado cuidadosamente hasta encontrar hueso sano, pero sin abrir la articulación de la rodilla. La cavidad restante fué rellenada con gasa vaselinada esteril y no se suturó la piel. Aparato enyesado.

Evolución.—Las últimas radiografías muestran considerablemente recogimiento de la cavidad y regeneración de la *epífisis. Se le practicará un injerto para apresurar la reconstrucción del* [illegible]

Caso No. 6: A. [illegible] —Diagnó [illegible] después de la fractura de ambos huesos del antebrazo izquierdo.

Generales.—Mexicano, masculino, blanco, casado, 35, años, policía de tránsito.

Molestias Principales.—Impotencia funcional de la mano y antebrazo izquierdos.

Antecedentes Personales.—Amigdalitis crónica en la infancia. Gonorrea en 1926, sífilis en 1930.

Operaciones Anteriores.—Amigdalectomía hace veinte años: primera operación para reducción abierta alambre de plata para la osteosíntesis, fué un fracaso y dió por resultado pseudoartrosis. Segunda operación en el antebrazo, cuatro meses después de la primera, usando placas y tornillos, fué aún peor y dió osteomielitis. Una tercera operación fué necesaria para sacar las placas y tornillos.

Estado Actual.—Hace tres años yendo en motocicleta chocó cayendo sobre su brazo doblado y produciéndose una fractura de ambos huesos del antebrazo, transversal, en su tercio medio. Una semana después del accidente, se hizo la primera operación y después las otras como ya se dijo antes. Las condiciones del paciente cuando ingresó a mi Clínica eran las derivadas de pseudoartrosis, es decir: impotencia funcional total de la mano y antebrazo enfermos.

Examen Físico.—Temperatura 36.5 C, pulso 72, respiraciones 19, presión sanguínea 120-70.

Examenes del Laboratorio.—Wassermann positivo. Restos de los análisis y pruebas preoperatorias normal.

Tratamiento Antiluético.—Intenso.

Tratamiento.—Bajo anestesia general por ciclopropano se practicó la siguiente operación: incisión de 6 pulgadas sobre la cara anterior del antebrazo, extendiéndose de dos pulgadas abajo del codo hasta la muñeca. Toda la pseudoartrosis fué extirpada dejando al final cuatro cabos oseos libres. Se tomó entonces un injerto óseo de la tibia izquierda y se dividió en dos por su eje mayor. El siguiente tiempo fué fijar estos injertos óseos autógenos en los cuatro cabos del radio y cúbito a manera de reemplazar las porciones pérdidas de las correspondientes diáfisis. La herida fué suturada y cubierta de la manera habitual concluyendo la operación con la aplicación de un enyesado de la mitad del brazo a la palma de la mano.

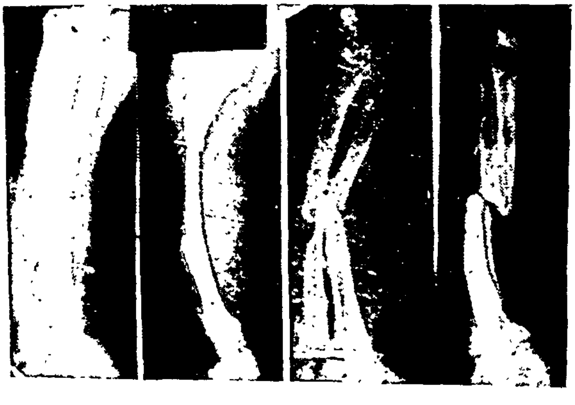

Fig. 3. Pseudoarthrosis después de la fractura de ambos huesos del antebrazo izquierdo.

Evolución.—Normal. El paciento salió de la Clínica al quinceno día. El aparato se quitó a los sesenta. La recuperación funcional ha sido casi completa.

Caso No. 7: J. P. L.—Diagnóstico.—Pseudoartrosis del tercio superior de la tibia derecha.

Generales.—Mexicano, blanco, casado, 33 años de edad, policía de tránsito.

Molestias Principales.—Impotencia funcional de la pierna derecha.

Antecedentes Personales. Changro sifilítico en 1926.

Estado Actual.—El 10 de abril de 1940 en un accidente de aviación se hizo una fractura expuesta del tercio superior de la pierna derecha, la cual se infectó y le dejó una mala consolidación. Sendoartrosis.

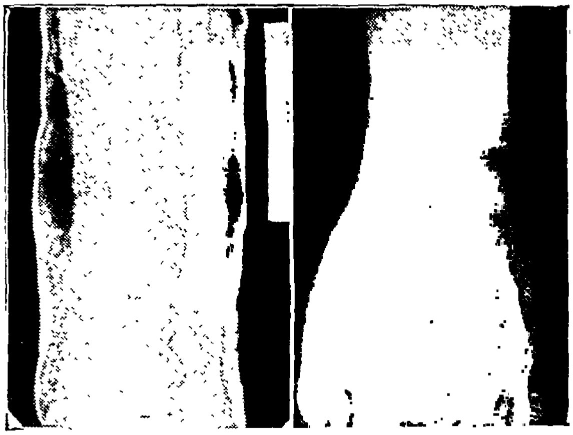

Fig. 4. Quiste de la epífisis inferior del radio derecho.

Examen Físico.—Motilidad lateral de la pierna. Imposibilidad de permanecer de pié sobre ella y de usarla para caminar.

Análisis Laboratorio.—Wassermann y reacciones similares fuertemente positivas. Otras pruebas normales.

Tratamiento.—Después de corto pero intensivo tratamiento antisifilítico fué operado con raquianestesia, efectuándose con las sierras paralelas un injerto por despizamiento tomado del fragmento inferior y colocando el pedazo superior del injerto en el lugar dejado al correr el inferior.

Evolución.—Muy buena. A las cuatro semanas se le permitía caminar con muletas y a los tres meses la recuperación anatómica y funcional era completa.

Caso No. 8: A. S.-R.—Diagnóstico.—Quiste de la epífisis inferior del radio derecho.

Generales.—Mexicano, masculino, blanco, casado, 34 años de edad, profesor de química.

Molestias Principales.—Disminución de la motilidad do la muñeca.

Estado Actual.—Hace un año empezó a notar que su muñeca derecha aumentaba de volumen, especialmente la epífisis inferior del radio, muy despacio pero de modo constante. Como la tumoración era indolente no le puso la menor atención. Conforme pasó el tiempo y por el aumento de volúmen los movimiento de flexión y extensión de la mano se limitaron parcialmente.

Examen Físico.—Un tumor de forma espérica, consistencia dura, y superficie regular se encontró sobre la cara externa de la muñeca derecha. Mide 1½ pulgada de diámetro.

Las Radiografías.—Mostraron un quiste óseo bien limitado, de paredes delgadas, situado inmediatamente arriba del cartílago diartrodial, pero sin invadir la articulación.

Pruebas del Laboratorio.—Normales.

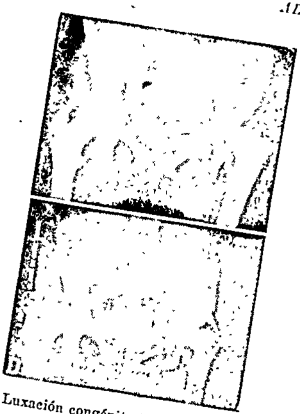

Fig. 8. Luxación congénita bilateral de las caderas.

de lo primero, diciendo que si pueden cultivarse tejidos en líquidos artificiales, mucho más podrán sobrevivir las células en un medio ideal como es el organismo. Describe los instrumentos que usa para la cirugía del ingerto, la cual llama "Cirugía Arquitectónica de los Huesos." Describe la técnica de Albee de toma del ingerto. Presenta 12 casos de ingertos óseos.

RÉSUMÉ

L'auteur présente la classique discussion sur la survie de la grêffe osseuse. Il croit à cette survie, disant que si la culture des tissus en milieu artificiel est possible, d'autant plus doit l'être la survie dans un milieu idéal comme l'organisme. Il décrit les instruments qu'il emploie pour la chirurgie des greffes osseuses, qu'il appelle "Chirurgie Architecturale des Os." Il décrit la technique d'Albee pour prendre la greffe. Il présente 12 cas de greffes osseuses.

Выводы

Автор разсматривает вопрос переживания трансплантата кости Он того мнения, что если возможно культивировать ткань в усскуственном растворе, то переживание трансплантата в такой идеальной среде, как человеческий организм, гораздо более уверен. Автор описывает инструменты употребляемые им при "архитектонической хирургии костей." Он также описывает технику Албе при приготовлении трансплантата и представляет группу 12-и больных.

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Cerebral Injuries*

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THE subject "Cerebral Injuries" is a most timely one in view of the present world conflict. Serious craniocerebral injuries are divisible into two main classes: closed wounds and open ones. Neither is foreign to military experience. Before considering these two types of craniocerebral injuries, it would be best to say something about cerebral concussion, which is common to all.

Cerebral concussion may be described as a state of complete unconsciousness resulting from the application of physical force to the brain. It develops instantaneously. It is not caused by, nor necessarily associated with, any gross changes in the nervous tissue such as lacerations, contusions or hemorrhages. It is of relatively brief duration, and from it the patient makes a complete recovery without any sequelae. It is worth emphasizing that the period of unconsciousness which results from simple cerebral concussion is always brief.

The patho-physiology of cerebral concussion and its development is still the subject of considerable controversy. There are those who believe that these brief states of unconsciousness are in some way intimately related with rapid acceleration or rapid deceleration of the mental processes. In what way that interferes with the nervous function or what changes are produced within the nervous tissues is unknown. Others, supported by the recent work of Scott, are of the opinion that cerebral concussion results from blows to the head of sufficient severity to increase the intracranial pressure momentarily above the level of the systolic blood pressure, thus producing a complete but very temporary cerebral ischemia.

Obviously, if only cerebral concussion resulted from craniocerebral injuries, they would not be a matter of great concern. It is the more serious and severe injuries, so often associated with cerebral concussion, that really excite our attention. For consideration of these more extensive injuries, it is well to divide craniocerebral injury into two classes, as we have noted before—the closed and open wounds.

CLOSED WOUNDS—CONTUSIONS AND LACERATIONS

Bruising of the surface of the brain, so-called contusion and laceration, is the most common gross injury to the brain produced by craniocerebral trauma. Obviously, contusions and lacerations of the cerebral substance can be produced by depressed fractures and by the penetration of foreign bodies. Far more common, however, is the contusion and laceration of the surface of the brain which occurs as the result of blows to the head where there is no penetration of the intracranial cavity. These changes are always the most severe in the softer cerebral cortex, often to the exclusion of the underlying white matter. There are certain parts of the brain which are particularly susceptible to this type of trauma—the orbital surfaces and tips of the frontal lobe, the lateral surfaces and tips of the temporal lobes and, less commonly, the tips of the occipital lobes.

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* [illegible]

As has long been well known, such damage to the cerebral cortex is often found in that part of the brain opposite the point at which the impact was delivered to the skull—*contre coup* injury. Such injuries to the tips of the temporal lobes and tips of the frontal lobes commonly produce no direct neurologic evidence of their presence. However, because the principal blood supply to the cerebral cortex comes from blood vessels lying in the pia mater on its surface, and as these blood vessels must of necessity be torn when the cortex is torn, the most typical manifestation of such contusion and laceration of the cerebrum is blood in the cerebrospinal fluid. Traumatic subarachnoid hemorrhage is, therefore, practically *prima facie* evidence of lacerations of the cerebral cortex. Of this hemorrhage, we shall have more to say later. Occasionally, of course, contusions and lacerations of the cortex may occur in such regions as the precentral area where they give rise to localized convulsions and paralyses.

EDEMA

In recent years, much has been said and written about the appearance of cerebral edema, as the result of craniocerebral injury. The experimental work of Pilcher has raised considerable doubt as to whether cerebral edema ever occurs as the result of cerebral concussion. With more severe and extensive injuries to the brain tissues, edema doubtless does occur, but its importance has been greatly overemphasized. In fact, many surgeons have become so impressed with the importance of cerebral edema that they not only deny to their patients necessary fluid but, by the use of various dehydrating agents, rob them of what little they have besides. It is surprising how many people have lost sight of the fact that it is impossible to subtract fluid from an edematous brain without at the same time taking away valuable and important fluids from all other tissues of the body as well.

Careful observation of the patient is essential if the complications are to be promptly recognized and adequately treated. Of these, the intracranial hemorrhages are the most important. The extradural and subdural hematomas give rise to the symptoms of cerebral compression and demand prompt evacuation. Intracerebral hemorrhages give rise to similar manifestations but are extremely rare. Subarachnoid hemorrhage is the most common type of bleeding to result from cranial trauma, causing meningeal irritation, and the treatment is spinal puncture. Small hemorrhages into the brain stem, pons and mesencephalon are common and are amongst the most frequent causes of death from craniocerebral injury. Such hemorrhages often cause prolonged periods of unconsciousness, paralysis of the oculo-motor nerves and disturbances of the temperature-regulating mechanism.

COMPOUND CRANIOCEREBRAL WOUNDS

Open craniocerebral wounds, produced in war, usually by the penetration of foreign bodies, demand prompt and efficient treatment if a high mortality is to be avoided. This treatment divides itself automatically into two stages.

Treatment at or ne [illegible] the fr[illegible] where one is pressed for [illegible] the lack of proper equipment, should be confined to necessary first-aid treatment. Morphine, so valuable in the treatment of wounds elsewhere in the body, should be avoided, if possible, in the treatment of craniocerebral wounds.

Shock should be treated promptly, not with stimulants and heat, but with intravenous administration of plasma and blood, or other fluids if those are not available. Sulfanilamide should be dusted into the open cranial wound and a sterile dressing applied after the major bleeding points have been controlled. First-aid treatment should not extend beyond these simple but important measures.

Having given first-aid treatment, it now becomes important to transfer the patient to some point back of the lines where time, equipment and personnel are such as to give the adequate treatment the patient deserves. This transfer should be made promptly, for if one is to avoid serious infection it is best that final and definitive treatment should take place within twenty-four hours. Before operation has begun upon this open craniocerebral wound, it is important that shock has either been controlled or is being adequately treated. The head should be completely shaved and thoroughly cleansed. X-ray pictures of the skull should have been taken so that the surgeon may be as completely informed as possible as to the nature of the wound which he is about to explore.

The wound should then be opened by an adequate incision so as to provide the surgeon with ample room in which to work and in which to inspect the trauma. Dirty, bruised tissue should be thoroughly removed by cutting away, by irrigation and by suction. This includes not only removal of traumatized and dirty scalp but removal of fragmented and contaminated bone, torn and contaminated meninges and contused and soiled brain tissue as well. It is important that all fragments of bone which have been driven into the brain be removed; the bullet also, if it is readily accessible. After thorough débridement and irrigation of the wound and control of all bleeding points by the use of irrigation, suction, electric cautery, bits of muscle, silver clips, etc., the entire wound should be dusted with sulfanilamide.

Sulfathiazole should not be used because of the danger of producing convulsions. Adequate débridement and thorough cleansing render drainage undesirable. There is still considerable debate as to whether or not the dura mater should be closed. If it is possible to close the dura mater by itself, then certainly that is desirable. Transplants from the fascia lata or from the periosteum, which are of necessity deprived of their blood supply, should be avoided. There is no argument, however, regarding the scalp. It should be closed tightly over the defect of the skull, even if that requires making incisions elsewhere in the scalp and transferring portions of the scalp to close the defects produced by the missile. After such an operation, it is important that the administration of one of the sulfa drugs, preferably sulfadiazine, be continued and the wounds be watched closely for the possible development of infection. In the event that any evidence of infection appears, the wound should be immediately opened and proper drainage instituted.

By the proper and intelligent coördination of a sound knowledge of anatomy and physiology of the nervous system, of the symptomatology of neurologic disease and of sound surgical principles, it will be possible to give our soldiers the medical care and attention which they deserve and to reduce the mortality and morbidity to a level commensurate with modern medical progress.

RÉSUMÉ

Deux groupes de traumatismes cranio-cerebraux sont étudiés: les contusions et lacérations fermées et les plaies ouvertes dues à la pénétration de corps étrangers.

Un diagnostic précoce et un arrêt de l'hemorrhagie sont essentiels dans les plaies fermées. L'auteur est d'avis que l'oedème dans ces plaies n'a pas la grande importance qu'on lui a attribué. Les plaies ouvertes sont traités au front immédiatement, administration intraveineuse de plasma sanguin, emploi de sulfanilamide et pansements stériles.

Dans les stations d'arrière les rayons-x précèdent le débridement, l'irrigation des plaies et l'application de sulfanilamide. L'emploi du sulfathiazole est contre-indiqué, car il peut provoquer des convulsions. N'ayez pas recours au greffage de fascia ou de périoste sur la dure-mère.

SUMARIO

Dos clases o grupos de heridas carnio-cerebrales son discutidas: heridas cerradas (contusiones y laceraciones) y heridas abiertas causadas por penetración de cuerpos extraños. Pronto reconocimiento diagnóstico y tratamiento de hemorragia en heridas cerradas es esencial. Es la opinión del autor que la importancia de la edema en esta clase de heridas o traumas es exagerada. Heridas abiertas deben recibir atensión de primer-auxilio en la linea-frente de batalla que incluye la administración intravenosa de plasma de sangre, aplicación de sulfanilamida y cura a telas esterilizadas.

Radiografía debe anticipar la operación de "débridement" en las estaciones de retaguardia, irrigaciones antisepticas y aplicación de sulfanilamida. El uso de sulfathiazole es contraindicada, por peligro de causar convulsiones o espasmos.

El uso de fascia-lata o periostium como trasplante para la dura mater debe ser evitado.

Выводы

Автор трактует о двух типах черепно-мозговых поражений· глухих и открытых. Быстрое распознание и лечение кровотечения играет важную роль при закрытых ранениях. Роль мозгового отека преувеличен при этих ранениях Открытыя ранения нужно лечить во фронтовой линии, включая переливания плазмы, употребления сульфа препаратов и стерильных повязок. Все это делается после рентгеновских снимок. Сульфатиазол противоуказан, так как он может причинить конвульсии.

Автор против пересадки фасции или надкостницы в твердую мозговую оболочку.

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Una Modificación a la Técnica de Neumoventriculografía*

(Modification of the Technic of Ventriculograpy)

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SUMMARY

The author offers the following modification of the technic of ventriculography: Each of the two ventricular trocars is connected by means of a short rubber tube to a suction and pressure valve mounted on a 2 c.c. syringe. The two syringes are fixed and so placed that they can be operated synchronously with one hand, and in such a way that while the ventricular needle is aspirating the cerebrospinal fluid the the other injects into the ventricle an equal amount of air.

Because of the importance of determining the patency of the foramen of Monroe, the operation is begun by injecting through the air syringe one-half of 1 c.c. of a solution of indigo carmine which should appear rapidly in the fluid withdrawn. This procedure may be continued until all of the spinal fluid is replaced with air from the ventricular system. If the operator fails to obtain a colored solution after withdrawing two, or at the most three, syringes full of the fluid, he should immediately perform a double puncture of the ventricle that has been injected with the colored solution and through it replace its fluid with air. The same procedure is then performed in the opposite ventricle.

The clinical course of fourteen cases so treated, seems to justify the author's opinion that when patients are subjected to this modified form of pneumoventriculography, they exhibit a great tolerance to the injection of air. This was particularly noted in the cases that were not immediately operated upon, and in whom the air was allowed to be reabsorbed spontaneously.

SON ya muy bien conocidos los procedimientos que desde que el genial neurocirujano, Walter E. Dandy el año de 1918, se han venido utilizando con pequeñas variantes para hacer visibles los contornos de las cavidades ventriculares cerebrales, con fines diagnósticos de existencia y de localizaciones de procesos neoplásicos de los elementos anatómicos de craneo y cerebro. Por esta razón y en obvio de tiempo que en esta ocasión estamos obligados estrechamente a ahorrar, no me ocuparé de ninguno en particular sino solo trataré de explicar lo más brevemente, cuál es el fundamento de la modificación que hemos introducido, en concepto nuestro con resultados ampliamente favorables.

Los pacientes que deben ser sometidos a la exporación por medio del estudio de sus cavidades ventriculares, sufren muy comunmente, pudiera establecerse que son constantes sus trastornos, por la producción de diversos fenómenos que sucintamente pueden ser agrupados como fenómenos de profundo desequilibrio vago-simpático.

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* Presented at the Third International Assembly of the International College of Surgeons in Mexico City, August, 1941

En efecto. La trepanación y la sola punción cerebral son inocuas e indoloras, pero la evacuación de líquido céfalo-raquídeo y su sustitución por cualquiera de los medios de contraste que hasta ahora conocemos, determinan de inmediato molestias de variable intensidad que pueden ser desde un pequeño dolor de cabeza hasta, en casos poco frecuentes, por ventura, condiciones sincopales cardiacas y respiratorias que ponen en peligro inminente la vida.

Este grupo de trastornos que esencialmente consisten en dolor muy comunmente localizado de pronto a la región frontal aunque a medida que se avanza en la evacuación de los ventrículos, se generaliza a toda la cabeza; de intensidad variable más en relación con la susceptibilidad individual que con otra circunstancia, puede llegar a ser extremadamente violento e intenso a grado tal que en ocasiones se tiene la impresión aparente o real de que el sujeto cae en estado lipotímico solo por esas dos condiciones de violencia e intensidad; del dolor vómitos en los que el esfuerzo aumenta considerablemente la intensidad misma o por lo menos estado nauseoso; profunda palidez de los tegumentos de la cara que a los pocos minutos puede ser substituída en ocasiones por congestión cefálica muy aparente en las conjuntivas; vertigo, muy constante aún en ausencia de la cefalea, pero muy frecuentemente acompañado de la nausea o del vómito; temblor de manos o miembros superiores y aún posible de generalizarse, descenso real de temperatura superficial en contraste con elevación apreciable, cincodécimos a un grado, de la temperatura de las cavidades naturales; sudo profuso particularmente notable en la mitad superior del cuerpo; lagrimeo en ocasiones abundante; flacidéz muscular que a veces nada raras, imposibilita al sujeto aún para sostenerse en pié; descenso de la tensión sanguinea que ante los trastornos citados, clinicamente no podría dejar de estar presente; este grupo de trastornos que puede presentarse y de hecho se presenta durante los momentos en que se practica la evacuación de líquido y su sustitución por el medio de contraste, debe ser considerado como una serie de molestias y peligros inmediatos a la ventriculografía.

Cuando el paciente es llevado a la mesa de rayos X, en general han desaparecido la mayor parte persistiendo sin embargo el dolor de cabeza que siendo constante y generalizado a todo el craneo, aumenta con los cambios de posición que inevitablemente deben darse al sujeto para la toma de las radiografías.

Habiendo practicado todos los procedimientos de trépanopunción cuya descripción fué posible tener en nuestras manos, dedujimos la importancia ya advertida por los autores, de la necesidad de evitar el cambio de presiones en las cavidades ventriculares, y así se hizo construir un simple dispositivo que permite extraer el líquido céfalo-raquídeo e inyectar simultaneamente el aire en cantidades rigurosamente iguales puesto que las jeringas del aparato funcionan sincrónicamente, aunque inversamente, una extrayendo el líquido y arrojándolo hacia afuera y la otra tomando el aire de fuera e inyectándolo a la cavidad ventricular. Cuando la comunicación interventricular está permeable, todo se reduce a extraer líquido por un lado e inyectar aire por otro, con lo cual cambiando la posición del paciente en forma apropiada, se obtiene que el aire que entra por un lado, impulse a salir el líquido por el otro y [illegible] ventrículo según podrá [illegible] cula que ilustra este [illegible] comunicación interventricular se ha perdido, lo cual debe ser advertido muy cuidadosamente para no inyectar aire en un ventrículo que no se vacía, aumentando así la presión interior de manera peligrosa, debe hacerse punción doble, o usar tracar de doblecorriente para cada ventrículo con lo cual el dispositivo puede trabajar sin dificultad mayor.

Se comprende que en ocasiones no hay posibilidad para localizar con el trocar alguno de los dos ventrículos, en cuyo caso la punción bilateral es imposible; la resolución es idéntica a la del caso en que el agujero de Monro de alguno de los dos ventrículos está impermeable, es decir se punciona y cambia el líquido por aire de un solo lado.

La condición de evitar las modificaciones de presión intraventricular, hasta donde técnicamente es posible, mediante este proceder, ha dado para nosotros los más favorables resultados desde el punto de vista de la yugulación, podriamos asentar, completa, sin caer en exageración, de todos los trastornos inmediatos, provenientes de la trépano-punción.

Es verdad que el número de nuestros pacientes es aún muy pequeño más estando habituados a ver en el trabajo corriente de varios años, que ninguno de ellos, ha dejado de manifestar aunque fuese molestias, que si no de mayor importancia son siempre muy desagradables, nos llamó altamente la atención que en el primero de aquellos en quienes se ha puesto en práctica esta modalidad de trépano-punción, no hubiese el menor trastorno de modo que aún fué posible que el sujeto se transladara caminando normalmente y sin sufrimiento alguno, a la mesa de rayos X. Luego los cambios de posición para tomar los diversos aspectos de las cavidades ventriculares, que como es bien sabido y ya se dejó anotado en líneas anteriores, producen el aumento considerable de la cefalea residual, no produjeron en él, la menor molestia.

La impresión que este primer caso nos produjo fué la de que además de la influencia que pudiera tener el procedimiento, nuestro enfermo habría de tener una también tolerancia, que aunque anteriormente, no habiamos visto, en ninguno podría en el caso, ser, con aquella, lo que hubiera determinado la perfecta condición en que quedó el paciente después de su trépano-punción. No obstante a este han seguido cinco más y en todos ellos, por cuanto se refiere a los trastornos inmediatos no ha habido alguno digno de anotarse.

No sucede lo mismo con otro grupo de fenómenos seguramente de mayor importancia desde el punto de vista del peligro para la vida, que se presentan tardiamente digamos de cuatro a diez horas posteriormente a la trépano-punción. Estos son fenómenos propios de la condición de hipertensión intracraneana, violenta y brutal acompañada de edema agudo de cerebro. Ya se sabe todo el gravísimo peligro que esto acarrea y la necesidad imperiosa que obliga al neurocirujano a practicar su intervención quirúrgica inmediatamente después de haber tomado las ventriculografía.

A decir verdad, no obstante, la intervención por sí sola no sería en la gran parte de los casos suficiente para evitar los trastornos y peligros tardios de la trépano-punción si no fuera porque deliberada o accidental o necesariamente durante las maniobras quirúrgicas se abre el ventrículo cerebral y se expulsa así el aire contenido dentro de él. Aun existe como resultado de la observación de que el aire produce una rápida y abundante secreción de líquido céfalo-raquídeo por irritación de los plexus coroides, el recurso de puncionar nuevamente una o las dos cavidades ventriculares, para darle salida cuando la situación post-operatoria del paciente puncionado manifiesta que comienzan a presentarse los trastornos tardíos.

Asentado lo anterior creemos que si hay alguna necesidad o interés terapéutico en proceder a la intervención inmediatamente después de haber practicado la trépano-punción, con la modalidad ya descrita, no hay inconveniente alguno en hacerlo, dadas las magníficas condiciones en que queda el paciente según nuestras observaciones. Mas cuando por circunstancias especiales no se ha de proceder a operar inmediatamente después de tomadas las radiografías de las cavidades ventriculares, puede aplazarse el acto operatorio con solo llenar una condición esencial consistente en evacuar el aire contenido en los ventrículos y sustituirlo por suero fisiológico lo cual es muy fácil y seguro de hacer sin modificar la presión interior haciendo uso nuevamente de la doble jeringa que permite tomar el suero de un recipiente, introducirlo a una cavidad ventricular en cantidad rigurosamente igual a la del aire que sale por el otro trocar y el cual una vez expulsado totalmente, dará paso al propio suero que inyectado por un lado, sale por el otro sin cambiar su presión pues solamente es removido en el interior de la cavidad ventricular.

En estas condiciones hemos podido ver que los peligros no raras veces mortales que amenazan a estos pacientes, ya tan delicados por la propia naturaleza de su mal, han desaparecido seguramente en una proporción muy importante.

No es posible dejar pasar inadvertida la siguiente consideración: El cambio de líquido céfalo-raquídeo por aire mediante el procedimiento descrito, se verifica por la salida y la entrada de cantidades iguales posibles de medir en las jeringas; la presión sin embargo debe variar aunque sea en muy pequeñas proporciones puesto que el aire al ponerse en contacto con las paredes de las cámaras ventriculares adquiere una temperatura mayor que la del medio ambiente lo cual debe producir un aumento en su volumen que si bien no ha resultado clínicamente apreciable, teóricamente si es de tenerse en cuenta.

Lo ideal desde este punto de vista sería realizar un desideratum que ha ocupado la atención de todos los que trabajan en estas cuestiones y que consiste en encontrar una substancia soluble en el líquido céfalo-raquídeo, opaca a los rayos X, no irritante, no tóxica, es decir de reacción neutra que por remoción del líquido céfalo-raquídeo hecha con el dispositivo de doble jeringa cuyo funcionamiento ilustraré enseguida con una película, y por la mezcla de dicha substancia con el propio líquido, este se tornará también opaco al rayo X con lo cual podrían obtenerse los mejores resultados desde el punto de vista de que no se causarían al paciente ningunas molestias y por otro lado se obtendrían imágenes perfectas cuyos contornos, forma, volumen, desplazamientos etc. serían posibles de interpretar con las mayores seguridades.

Esto lo tenemos en estudio a investigamos actualmente las posibilidades de realización utilizando algunas sales de metales raros con el fin de hacer de la trépanopunción un procedimiento útil e inocuo en la forma más estricta no obstante que consideramos que dicho procedimiento de exploración, va a ser muy pronto desalojado por las exploraciones de los potenciales eléctricos cerebrales, con las cuales hemos podido establecer diagnósticos de una precisión aún mayor que los hemos obtenido con el estudio de las cavidades ventriculares del cerebro.

Sin embargo la trépano-punción aún conserva su caracter de procedimiento clásico en tanto que la electro-encefalografía va abriendo su cami [illegible] s no se acredite en fo exacta, habrá que seguir echando mano todavía de los diversos procedimientos de neumoventriculografía.

SUMARIO

La modificación a la técnica del ventriculografía, motivo del trabajo, se refiere a que una vez hecha la punción ventricular evitando que escurra el líquido por ninguno de los dos trocars, se conecta a uno de ellos un ajuste que por medio de un corto tubo de cauchu comunica al trocar con un sistema valvular aspirante e impelente el cual va montado sobre una jeringa de dos c.c. Lo mismo se hace con el segundo trocar. Ambas jeringas van montadas sobre un dispositivo que permite accionarlas sincrónicamente pero inversamente lo cual se consigue hacer con una sola mano. Una de estas jeringas mediante su juego valvular toma el líquido céfalo-raquídeo a través del trocar ventricular y lo arroja hacia afuera pudiendo ser recogido en un tubo de ensayo: la otra toma aire del exterior y lo inyecta a través del otro trocar, al interior del ventrículo sustituyendo el líquido que va saliendo por cantidades exactamente iguales de aire.

Como la punción ventricular doble obliga absolutamente a comprobar la permeabilidad del agujero de Monro, una vez colocados los dos trocares en su lugar, la operación de cambio de líquido por aire se inicia siempre cargando la jeringa que inyecta el aire con una solución colorida (indigo carmín) en pequeña cantidad, medio c.c. que al accionar las dos jeringas inyectando primero éste, aparece rápidamente en el líquido extraído y puede continuarse la operación hasta que se agote el líquido céfalo-raquídeo del ventrículo correspondiente y por tanto de todo el sistema ventricular. En caso de que el color no aparezca en el líquido al segundo o cuando más al tercer jeringazo, se debe hacer doble punción en el ventrículo inyectado con el color, para hacer el cambio de líquido por aire con la doble jeringa a través de dos trocares colocados en el mismo ventrículo. Se repite la operacíon del lado opuesto. La apariencia clínica de los pacientes sometidos a la ventriculografíca en catorce casos en los cuales ha sido empleada, parece indicar que la tolerancia del aire introducido en esta forma, al interior del sistema ventricular, es grande, lo cual se ha podido observar en aquellos sujetos que no han sido sometidos inmediatemente después a la intervención quirúrgica y en los que, por otro lado, se ha dejado el aire a que sea absorbido espontaneamente.

RÉSUMÉ

La modification à la tecnique, motif du travail, se rapporte à ce qu'une fois faite la ponction ventriculaire, évitant que le liquide s'écoule par aucun des deux trocarts, on connecte à l'un d'eux le bout d'un petit tube de caoutchouc qui communique le trocart avec un système valvulaire aspirante et impelant lequel a été assujetti à une seringue de deux c.c.; on fait le même avec le second trocart. Les deux seringues son assujetties sur un dispositif qui permet actionner avec elles, syncroniquement mais inversement en même temps, ce qu'on peut faire avec une seule main. Un de ces deux seringues au moyen de son jeu valvulaire, aspire le liquide ventriculaire à travers le trocart et le jette au dehors, pouvant être mis dans un tube d'essai; l'autre prend l'aire de l'extérieur et l'injecte à travers de l'autre trocart à l'intérieur du ventricule, substituant le liquide qui sort par desquantités égales d'air.

Comme dans la ponction ventriculaire double il faut absolument constater la perméabilité du trou de Monro, une fois que le deux trocarts sont mis à leur place, l'opération du changement de l'air à la

place du liquide commence toujours en remplissant la seringue qui injecte l'air avec une solution colorante (indigo-carmin) en petite quantité (½ cm. 3) qui, en travaillant les deux seringues, injectant d'abord celui-ci, apparaît rapidement dans le liquid extrait et l'opération peu continuer jusqu'au moment où le liquide céphalo-raquide du ventricule correspondent s'épuisse, et naturellement aussi celui de tout le systême ventriculaire. Dans le cas ou après le deuxième ou, tout au plus, au troisiême coup de seringue la couleur n'apparaisse dans le liquide, il faudra faire une double ponction au ventricule injecté à la couleur pour faire le changement de l'air au lieu du liquide avec la double seringue à travers de deux trocarts placés dans le même ventricule. On répète l'opération de l'autre côté. Les résultats cliniques obtenus sur les malades soumisa la ventriculographie, sur les quatorze cas dans lesquels on l'a employée, parait indiquer que la tolérance de l'air introduit dans cette forme à l'intérieur du systême ventriculaire, est bien grande comme on a pu l'observer sur les malades qui n'ont pas été soummis inmédiatement après, à l'intervention de la chirurgie et d'autre part sur ceux dans lesquels on a laissé que l'air soit absorbé spontanément.

Выводы

Автор предлагает следующую модификацию вентрикулографии· Каждый из двух желудочных трокаров соединен посредством резиновой трубки с клапаном шприца содержащего 2сс. Оба шприца укреплены и поставленны так, что их можно оперировать своевременно одной рукой, и так, что в то время как один шприц высасывает ликвор, другой вдувает в желудочек столько-же воздуха.

С целью определить проходимость дыры Monroe, операция начинается вспрыскиванием через шприц 0.5cc раствора индиго кармен, который должен быстро появиться в высосанном ликворе. Эта процедура продолжается пока весь ликвор не заменен воздухом. Если хирург не получит окрашенной жидкости после высасывания раза два или три, то он обязательно должен сделать двойную пункцию желудочка наполненного окрашенным раствором и заместить его воздухом. То-же нужно проделать на противуположном желудочке. Клиническое течение у 14-ти пациентов потверждает мнение автора, что эта модификация пневмовентрикулографии делает пациентов более резистентными к вдуванию воздухом. Это особенно было замеченно у пациентов, которые не сейчас были подверженны операции и где воздух самопроизвольно высасывался.

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Adult Tissue Extracts in Promotion of Wound Healing*

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THE theoretical basis from which these experiments were developed was provided by Carrel,[1] who showed that various kinds of adult as well as embryonic tissues were capable of greatly activating the multiplication of cells *in vitro*. Stimulated by those studies a number of authors (Carnot, P. and Terris, E.,[2] Roulet, F.,[3] Wallich, R.,[4] Kiaer, S.,[5] Schloss, W.,[6] Nakamura, T.,[7] Morosow, D. and Striganova, A.,[8] Nielsen, E.[9]) also made attempts to effect the closure or accelerate by local application of embryonic extracts the healing of wounds in which normal healing was poor or retarded. The results of these experiments were invariably the same, in that the influence of all those substances was found to be extraordinary in experimental animals as well as in the human subject. The latest contribution to the question was made by Waugh[10] who reported very satisfactory results with epicutan—a substance in which the active fractions of embryonic extracts were bound to kaolin by absorption.

The main disadvantage of the above method is the great difficulty in procuring the embryonic material necessary for the preparation of the extracts. A more accessible source was therefore necessary. It had been shown[11] that extracts of adult tissues might also be used to advantage on account of the remarkable cell-growth promoting activity they develop. Such cell-growth stimulating factors are almost universally available and can be obtained from practically any kind of tissue. Under certain experimental conditions the potency of one or the other of those extracts (brain, heart, smooth musculature) may be up to three times as high as that derived from an embryonic source. The effect—as may be concluded from *in vitro* studies—is not bound to the species; *e.g.*, extracts from the hearts of chickens or sheep are able to promote considerably the growth of human epithelium *in vitro*.

The above consideration led Doljanski and co-workers[12] to suggest the employment of adult tissue extracts as a means of influencing the healing of wounds. It was as a result of that suggestion that the clinical experiments reported upon were undertaken.

During the first phase of our studies wound healing through saline extracts prepared from the hearts of adult chickens was attempted.

THE EMPLOYMENT OF ADULT TISSUE EXTRACTS TO EFFECT OR ACCELERATE THE HEALING OF WOUNDS

Extraction Technic. Observing all precautions for sterility, the hearts were removed from the bodies of animals that had just been killed and then ground in the Latapie apparatus. The tissue mash was then mixed with five times its volume of tyrode solution, shaken for an hour and allowed to stand in the refrigerator over night. The mixture was then centrifuged. Extracts prepared according to this method can be preserved on ice for weeks.

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Technic of Application. Infected wounds were treated with sulfanilamide prior to applying the extract. In its application, the moist-chamber method was used. The wound was covered with gauze soaked in the extract, which was changed every day or every second day. If the center of the wound had a torpid appearance without development of fresh, bleeding granulations, the wound surface was scarified with a scalpel before institution of the extract treatment. Where too active granulations provided an obstacle for the advancing epithelial seam, they were scraped away with a sharp spoon. Hemorrhage was controlled by compresses soaked in warm NaCl or Ringer solutions.

Results. The practical part of the work was entrusted to Dr. Schloss who will give a detailed account on its progress elsewhere.

The following review of a number of cases is quoted from his publication: *Category A:* 18 cases of wounds and ulcers caused by trauma (mechanical, chemical, irridatory, etc.). In 13 of these cases, which appeared particularly resistant to other forms of treatment, complete closure was brought about by adult tissue extract. There was considerable improvement in 3 cases, while 3 others were not influenced.

Category B: 15 cases of chronic varicose ulcers. Of these, 12 healed with firms scars and 3 showed improvement.

Category C: (1-4) 24 cases. Owing to the small variety of material of this group, the results, no matter whether positive or negative, appeared inconclusive. However, interesting and valuable experience upon the efficacy of the adult tissue extract could be gathered.

(1) Five cases of osteomyelitic ulcers: Of these, 3 healed, 1 was improved, 1 remained unchanged. Of 3 cases of chronic ulcers with underlying tuberculosis, 1 healed, 1 showed improvement, while the 3rd was not influenced.

(2) Ulcers due to defective circulation (4 cases): One healed, 2 improved, and 2 remained unchanged. Diabetic ulcers (2 cases): None healed; 1 improved, 1 remained unchanged. Trophic ulcers (2 cases): One healed, 1 remained unchanged.

(3) In 4 cases of phagedenic ulcer the extract treatment was tried in addition to the usual therapy. No obvious influence on the bacteriological condition was noted; but in all 4 cases, in spite of severe infection, vigorous stimulation of the granulations could be observed. In 2 cases even lively proliferation of an epithelial zone into the infected area took place.

(4) Four cases of resistant ulcerations after burns: Two healed with a

Table I

Category	No. of Cases	Healing effected	Improved	Unchanged
A	19	13	3	3
B	15	12	3	—
C	24	10	8	6
Total	58	35	14	9

particularly soft scar, 1 showed considerable improvement, while 1 was only temporarily influenced.

DRY POWDERS PREPARED FROM ADULT TISSUE EXTRACTS

Although, from a practical standpoint, the results yielded by saline adult tissue extracts were definitely positive, a general adoption of this method might meet with difficulty. The actual preparation of the saline extracts is rather a simple procedure, but very strict observance of sterility throughout the entire process is a prerequisite. The extracts have, moreover, to be kept sterile and in a cool place and their preservability is limited.

We, therefore, proceeded to study the method devised by Werner and Doljanski,[13] who isolated certain fractions from the tissue extracts and prepared them in the form of a dry powder.

Preparation of the Dry Powder. According to the method devised by Werner and Doljanski the hearts of adult animals (chickens or sheep) are passed through a mincing-machine, following which five times the volume of Ringer solution is added. This tissue emulsion is then shaken for an hour, allowed to stand in the refrigerator over night and centrifuged. The supernatent fluid is precipitated with four times its volume of alcohol and the precipitate dried *in vacuo.* The dry material is then finely mortared and taken up with ether. After standing an hour it is centrifuged and the remaining ether allowed to evaporate. Up to the ether stage the entire procedure needs no attention to sterility. (The alcohol precipitations obtained in this way are—to some extent—soluble in tyrode solution. In *in vitro* cell cultures this solution shows a very high cell-division promoting potency and is by no means inferior to the original extracts.)

Technic of Application. A thin layer of the powder is applied to the wound surface, followed by a thick layer of dermatol powder. The surrounding skin is covered with some neutral ointment. In case of infection the tissue powder is mixed with sulfanilamide (Grubbs).

Table II

	No. Cases	Success	Failure
1. Nonhealing wounds after traumatism, injuries, accidents, shot wounds	9	8	1
2. Varicose ulcers	7	6	1
3. Osteomyelitic ulcers of the skin	2	2	—
4. Various types of ulcers (trophic, in Burger's disease, after burns, bites)	5	1	4
5. Special cases (scalping, electrical injury, noma)	3	3	—
6. Postoperative wounds (3); postoperative wounds after continued fractures (2)	5	5	—
7. Dry powder treatment instead of plastic operations	5	5	—
Total	36	30	6

Every second day dressings are changed, but care should be taken that the adhering parts of the gauze are cautiously removed by rinsing with NaCl

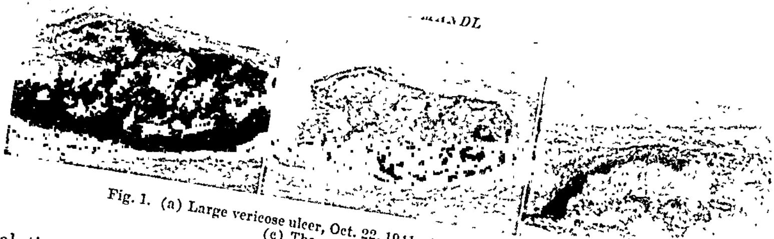

Fig. 1. (a) Large vericose ulcer, Oct. 22, 1941. (b) The same ulcer on Oct. 28, 1941. (c) The same ulcer on Dec. 17, 1941.

solution. In some cases scarification or mechanical removal of a surplus of granulations may become necessary (see above).

Results. A total of 36 cases, grouped as follows, were treated with tissue powder: (1) Chronic wounds which refused to heal or did not respond to other methods of treatment, 26. (2) Operation wounds, 5. (3) Cases in which, for experimental reasons, the dry powder method was employed instead of the usual procedure of grafting, 5.

In one of the cases (scalping, see Fig. 4) dry powder treatment was combined with Pinch grafts.

In Table II cases are grouped according to diagnosis, on the one hand, and success or failure of the method on the other.

As to the classification of the cases in the above table it should be pointed out that the "successful" cases were those where it was possible within a reasonable length of time to effect the healing of wounds which had been present for weeks, months or even years and had all the time refused to respond to any other method of treatment. "Failures"

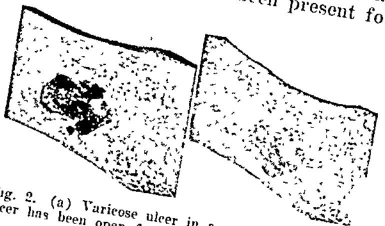

Fig. 2. (a) Varicose ulcer in a man aged 50. The ulcer has been open for three months (b) Healing after 10 days' treatment.

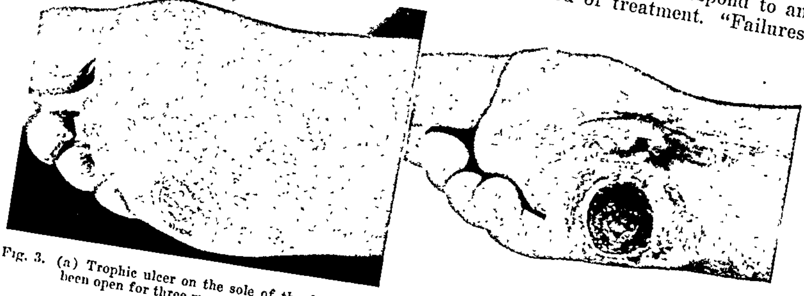

Fig. 3. (a) Trophic ulcer on the sole of the foot, caused by gunshot wound in been open for three months in spite of treatment. (b) Healed ulcer f int The

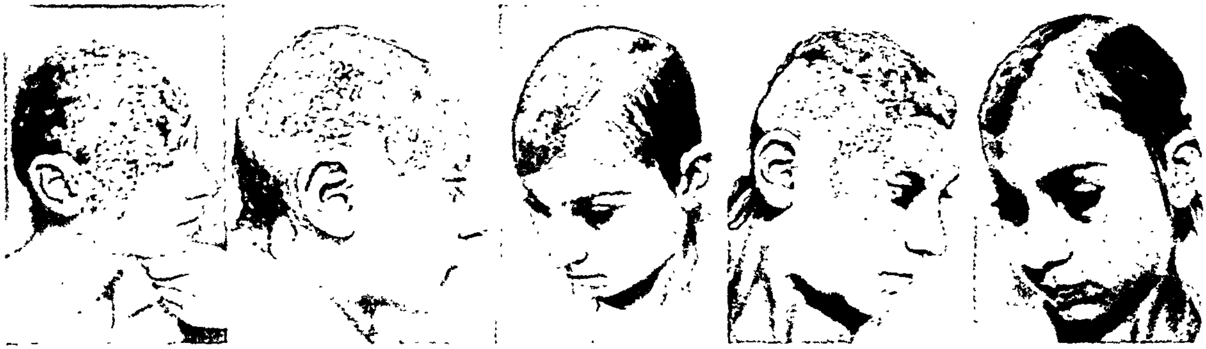

Fig. 4. (a) Scalping due to industrial accident. (b) The right portion of the wound following treatment with powder shows an epithelial seam much wider than in Fig. 4c. The pinch grafts, applied to the wound after three weeks, are coalescing. (c) Left portion of the wound, untreated with powder, shows narrow epithelial seam and isolated pinch grafts. (d) Continuous epithelization in the powder-treated portion. (e) Epithelization advancing at an incomparably slower rate than in 4d.

are those where no healing could be effected in reasonable time or where after initial closure the wound burst open again.

In *Category 6* "success" indicates that closure of the skin defect could be achieved. In *Category 7* it indicates healing of the wound under powder treatment where otherwise plastic methods would have been employed.

The description of Cases 1-4 may be omitted. We are only giving the photographs of a large varicose ulcer and of one of normal size (Figs. 1, a and b, and 2, a and b). There is further a photo of a soldier with a gunshot wound of the sciatic nerve who developed a trophic ulcer in a perfectly anesthetic area of the skin. Closure of that ulcer also took a few days (Fig. 3, a and b).

CASE REPORTS

The following case reports and illustrations refer to *Category 5:*

Case 1. Complete scalping due to industrial accident. The importance of this case for us lay in the singular experimental condi-

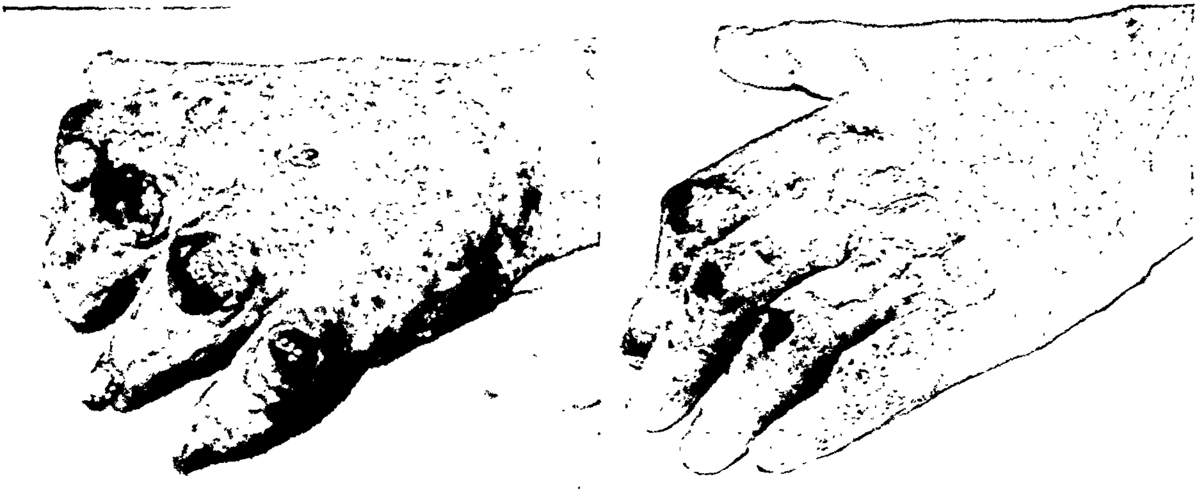

Fig. 5. (a) Open carpometacarpal joints following electrical injury. Start of powder treatment following three [illegible] progress in healing. (b) Twenty-one days after start of treatment. Almost complete closure of all wounds.

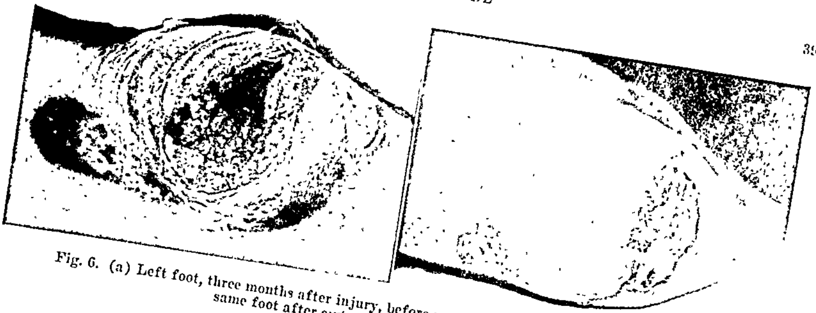

Fig. 6. (a) Left foot, three months after injury, before institution of powder treatment. (b) The same foot after sixteen days of powder treatment.

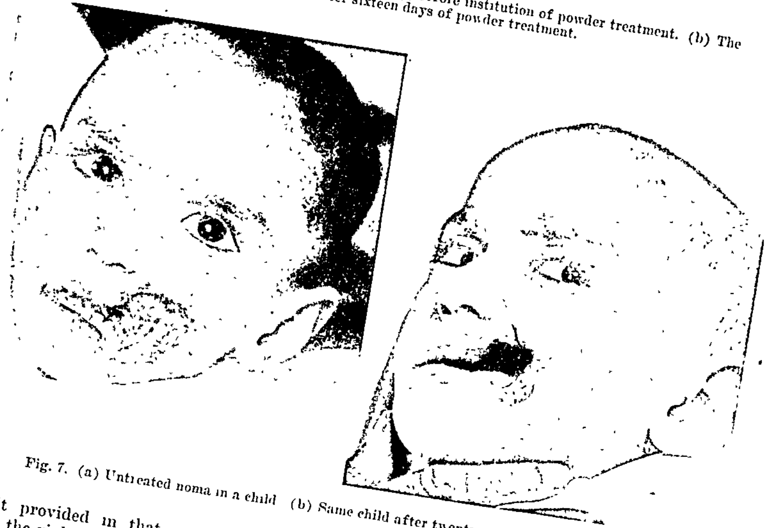

Fig. 7. (a) Untreated noma in a child (b) Same child after twenty seven days of treatment

tions it provided in that one part of the wound, the right edge, was treated with powder, while cod liver oil ointment was applied on the left edge After the lapse of three weeks, epithelization on the right portion of the wound was 1½-2 cm., while on the left the maximum width of the epithelial seam was ½ cm. Later pinch grafts were put on the wound surface. In those places where powder treatment was simultaneously continued, the number of grafts that actually took was, to begin with, greater than elsewhere Here communications between the individual pinch grafts soon developed, which were, however, absent in places which had been left untreated. This case merely served as a clinical experiment; no complete healing could be effected (*Cf.* Fig. 4-4e).

Case 2. Severe electrical injuries (14,000 volts) on the chest, both arms, hands and legs had been treated [illegible] months, but during [illegible] where [illegible]

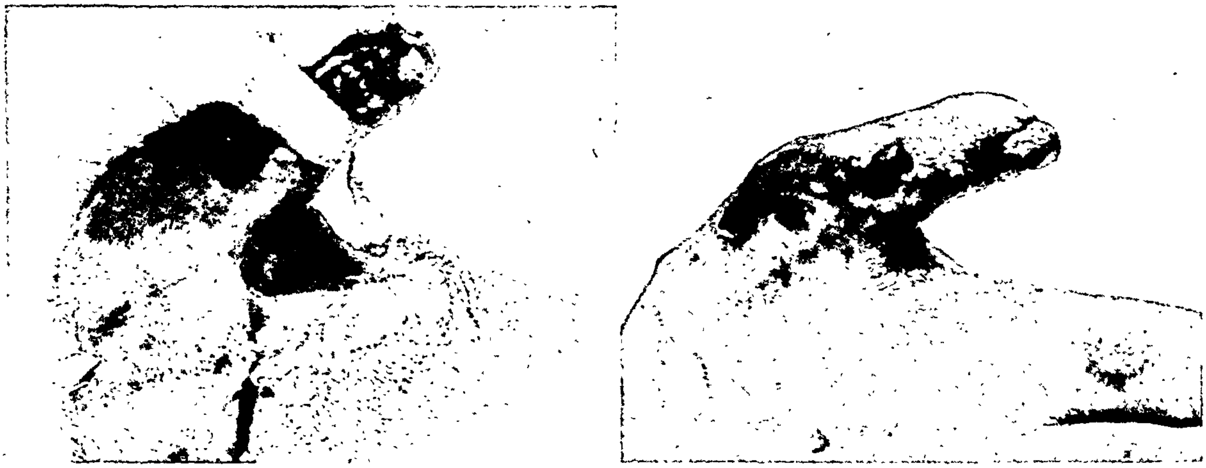

Fig. 8. Right hand of patient No. 5. Syndactylism between first and second finger of right hand. Separation. After abduction of thumb one sees deep rhomboid wound treated with powder from the beginning. (b) Same patient fourteen days later. Syndactylism did not recur.

in the healing of the wounds was recorded. The inscription on every photo gives information on the time that had elapsed from the day our treatment was started. The closure of the extensive arm wound (23 x 7 cm.) within seven weeks was particularly impressive (Figs. 5-6b).

Case 3. Noma in a child. Closure of the wound of the soft tissues was effected within a period of twenty-seven days from the start of our treatment (*Cf.* Fig. 7, a and b).

Category 6. The two cases included in this category presented severe, open comminuted fractures of the upper arm and forearm, in both cases caused by a motor-car accident, which had been placed in plaster-of-Paris dressings and left there for some time, after excision of the wound, partial suture and reposition of the bone fragments. As is frequently seen in cases of this kind, removal of the splint reveals sufficient healthy granulations but not the slightest evidence of epithelization. The usual ointments had no or only very little effect in these cases.

In the one, when the powder treatment was started, the wound was 11 cm. long and 2½ cm. wide. After twenty-four days, closure was complete with a firm but well movable scar.

In the other case it was 7 x 3 cm. There was complete healing within a fortnight.

The three postoperative wounds were selected for the particular stubbornness with which they refused to heal. One had burst open again after radical operation for mammary carcinoma. In the second the wound was of a particularly torpid type and had developed when the operation wound (inoperable rectal carcinoma) of the abdominal wall had reopened, while the third had occurred in connection with the second phase of an operation for cryptorchidism, where a scrotal defect (2 $cm.^2$) had developed.

In none of them were the customary methods of treatment (Peru balsam, cod liver oil ointments, rivanol compresses, lapis ointment, etc.) of any avail. Here the decisive factor was not so much the size of the skin defect, but the entire absence of any healing tendency. Powder treatment effected closure after 16.6 and 10 days respectively.

Group 7, *Case 1.* In a 9 year old boy a flexion contracture of three fingers had developed from infection of the palm. We separated the callous tissue horizontally with a knife on the level of the three finger joints. Stretching of the fingers produced large rhomboid wounds of a type that is usually attacked by grafting, while our procedure was to apply the powder only, immediately after the operation. Perfect healing was achieved in the course of ten days and the hand restored to normal function.

Cases 2 and 3. Encouraged by the satisfactory results of the treatment in the first case, we selected two other perfectly identical ones from among our outpatient material and proceeded in exactly the same manner (after transverse incision and stretching of the fingers) as in *Case 1.* Healing was accomplished within sixteen and twenty-five days respectively and the hands restored to normal function.

Case 4 was the readmitted patient with electrical injuries in whom the scars had produced syndactylism. Here the results were also good, with no need to resort to plastic operations (*Cf.* Fig. 8, a and b).

Case 5 presented a skin defect of the cheek after operation for extirpation of the eye, which is usually closed by grafting. Under powder treatment, the defect disappeared within 10 days (size of the wound 5½ x 3 cm.).

CONCLUSIONS

Reviewing the clinical results of the method, we see that it was successful in 65 out of 94 cases. It is our impression that the effect concerns the formation of fibrous tissue and—probably even to a higher degree—stimulation of epithelization. Results were particularly convincing where it was preëminently the absence of epithelization that delayed the healing of the wound. Thus it is, for example, always surprising to see how, after wounds have been under plaster-of-Paris dressings for some time (*e.g.*, severe open comminuted fractures or gunshot fractures of the extremities) granulations have generally developed excellently while, however, epithelization is entirely absent. In cases of that type our method was particularly successful.

But there were also a number of varicose ulcers which, having stubbornly resisted any therapeutic attempt for months or even years, could almost invariably be closed within a period of a few weeks.

Twenty-nine out of a total of 94 cases were failures. It is, however, worth mentioning that after bacteriologic examination, no virulent germs could be identified on their surface. Infection, therefore, was certainly not the cause of the failure to heal in those cases. Others were tested for vitamin C deficiency, but also with negative results. Vitamin C, therefore, cannot be held responsible for the failures either.

DISCUSSION

Although for three decades now much attention has been devoted to the question of whether wound healing may be accelerated by local application of cell-division promoting factors, no solution to the problem has yet been offered. Where such attempts were made the conclusions drawn were based on a very small number of clinical cases and so lost their value.

The problem was approached from two directions. On the one hand, the local application of cell-division stimulating factors was intended to accelerate the normal healing of wounds, while, on the other hand, the method was to serve the purpose of effecting the closure of indolent wounds, *i.e.*, wounds with no healing tendency. In either case it is, however, very difficult to form an opinion on the efficiency of one or the other therapeutic method.

To measure the acceleration of the normal healing process would require a criterion not at our disposal from which to judge the speed of healing. Earlier attempts (chiefly by de Nouy) must now be considered obsolete. A variety of local or general factors may be active in dela ing the normal healing of wounds. Any attempt to include the total of them in a formula is—at least at the present stage—doomed to failure.

The so-called "indolent" wounds constitute a major problem so far unsolved. There are external factors (climate, diet, care, rest) and the internal ones (internal diseases, intercurrent acute or chronic disturbances, endocrine disorders, diseases of the blood, deficiencies, vascular diseases), and eventually local factors (infection, the localization of the wound, blood supply, excessive granulations). If closure is rapidly effected by the institution of a certain therapy in a wound which has previously showed no healing tendency, we are fully justified in considering this a positive result of the method employed. In the great majority of our cases, therefore, local stimulants to all appearances accelerated the healing of the wounds or effected their closure. A large number of wounds refuse to heal for reasons perfectly incomprehensible to us. Every indolent wound has its own intricate history, which alone determines the particular course healing is taking in that case. Here the establishment of norms would be even more absurd than in the first category.

Either in wounds in which the healing process calls for acceleration or in the indolent type, the value of a particular therapeutic method can be judged solely from outward appearance. The value of these experiments, therefore, depends on accuracy of observation and the amount of material at the physician's disposal.

The present report can only be considered a contribution to the compilation of data so necessary for the solution of the problem of influencing wound healing by local application of cell-division stimulating factors.

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RÉSUMÉ

Les extraits de tissu adulte employés pour activer la division cellulaire ont été employés avec succès pour effectuer et pour accélérer la cicatrisation des plaies. L'auteur décrit la manière d'extraire et d'appliquer les extraits tissulaires et les poudres sèches qui en sont dérivés.

Des résultats positifs furent obtenus dans les cas d'ulcères diabétiques, ulcères trophiques, ulcères trophiques dus à des troubles circulatoires et aussi dans des ulcères résultant de brûlures; néamoins les poudres desséchées des extraits tissulaires adultes nous donnent les résultats les plus satisfaisants nous ayant obtenu 65 guérisons dans 94 cas.

SUMARIO

Extratos de tejidos adultos, cuando usados para estimular y promover la cura de heridas, han demostrada su eficacia en accelerar el proceso curativo.

Procedimientos técnicos son presentados para la extracción y aplicación de

los extractos de tejidos y de polvos secos preparados de los extractos.

Los resultados obtenidos con el uso de extractos de tejidos adultos han sido positivos en casos de heridas traumáticas y úlceras, úlceras varicosas crónicas, úlceras osteomialíticas, úlceras causadas por deficiencia circulatoria, úlceras diabéticas, úlceras causadas por malanutrición, úlceras y ulceraciones que resultan de quemaduras.

Aun más, los polvos preparados de los extractos de tejidos adultos, dieron mejores resultados, completando la cura de heridas en 65 de 94 casos.

Выводы

Экстракты созрелых тканей значительно ускорили заживание ран. Автор описывает технику приготовления экстрактов и их применения в виде порошков.

Благоприятные результаты были получены в лечении экстрактами язв травматических, при хронических варикозных язвах, при язвах диабета, при трофических язвах и при обжогах.

Сухие порошки дали наилучшие результаты, давая заживание в 65 из 94-х случаев.

NINTH ANNUAL ASSEMBLY UNITED STATES CHAPTER

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Suturing Infected Wounds of the Face

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THE suturing of infected wounds of the face has not been a problem of great importance in the past, and consequently the literature to be found on this subject is very meager. Today, conditions brought about by the present conflict have given this subject a place of great importance. I refer in this paper to the wounds that communicate with the nasal cavity and the mouth.

During the past five years in the San Felipe Hospital of Tegucigalpa I have tried various technics in an endeavor to solve some of our own particular problems of time and space; and these experiences and the results obtained seem important enough for presentation under present conditions.

Patients with wounds of the face come to San Felipe Hospital from two to six days following the injury, depending upon the distance they have to cover to get there. Usually they have received nothing but home treatment, and the wound is covered with dirty rags. The wounds vary from the severely contused and lacerated wounds produced from falls (Fig. 1. a and b) to the common clean-cut machete wounds.

The common incised machete wound is typical. The wound is produced by very long and sharp knives, called machetes in Latin America and bolos in the Philippines. The machete is used as an agricultural implement, as a household tool and as a popular weapon. The wound produced in a hand-to-hand fight is usually on the side of the face, diagonally from the left eye to the right of the chin, or on the center of the face and vertically from the eyes down to the chin. The knife, after cutting through the soft tissues, imbeds itself in the bones of the face and has to be pried loose. These wounds communicate with the nasal cavity and the mouth. This weapon is being used in jungle fighting, and without doubt similar wounds are common on our battlefront.

By the time these patients come to us, hemorrhage has been stopped and infection has set in. The inflammation varies from the acute to the subacute. It may be stated at the beginning that the various technics and treatments given by excellent texts have been evaluated. Bailey's[3] definite principles for the management of the infected war-wound have been studied as they apply to our problem. There is little variance of opinion as to whether or not the wound should be closed; the experiences of war surgery by Cochrane,[9] Odelberg,[10] and Weddell[30] may be summed up in the statement that a comparatively quiescent wound can best be treated by watchful waiting. The most common method of treating these wounds has been the cleansing of the wound, removing foreign matter, irrigating it and packing gently to allow it to heal by granulation. This is a long process at best, requiring time and care and leaving unsightly scars that require plastic treatment. These methods have

dead tissues and foreign bodies, the pieces of bone that are totally detached from the periosteum, as well as broken or very loose teeth, are removed. Ligation of bleeding vessels may be done at this time.

If the wound does not perforate into the nasal cavity or the mouth but only into the soft tissues of the face, *the wound must be continued into the nasal cavity, the mouth, or both.* A good connection must be established into these cavities if the tissues of the nose, lips or cheeks are involved. This is *important.* The connection into the nose or mouth will provide drainage for infected tissue. Next a drain is placed from the wound into the nose or mouth or both. A quarter-inch 5 per cent iodoform gauze or vaselined drain may be used.

The muscles are then sutured using No. 00 or No. 000 catgut, or where traction or tension is great and the supuration profuse, stainless steel wire is used. These wire sutures may be left buried. Care must be exercised in suturing these structures that the stitch be placed sufficiently far from the cut edge to prevent sloughing of tissues. The skin is then approximated and sutured with little undercutting. Deknatel, fine silk, fine steel wire or cotton thread will do nicely. The interrupted suture is preferable. The necessary retention sutures are then placed to relieve the strain that is sure to come from pressure of the postoperative edema. It should be noted that the mucous membrane is not sutured, and when found intact, it is cut to establish drainage into the mouth or nasal cavity; further, that the muscles and skin are sutured so that healing will begin from the surface—from the skin toward the mucous membranes.

The wound of the face is painted with mercurochrome or any other mild antiseptic and left uncovered. The most marked postoperative reaction is edema; this is sometimes severe for twenty-four hours. One or two sutures may be torn unless they are well placed in sufficient numbers with strong retention sutures. This reaction is accompanied by a rise in temperature that subsides usually within twenty-four hours.

After about seventy-two hours the inflammation subsides or is altogether absent. (Fig. 2.) Drainage is well established, and the changing of drains is indicated. The patient is more comfortable than he would be with an open wound of the face, and often he is up and about. The skin sutures are left in place for approximately six days, depending on the case.

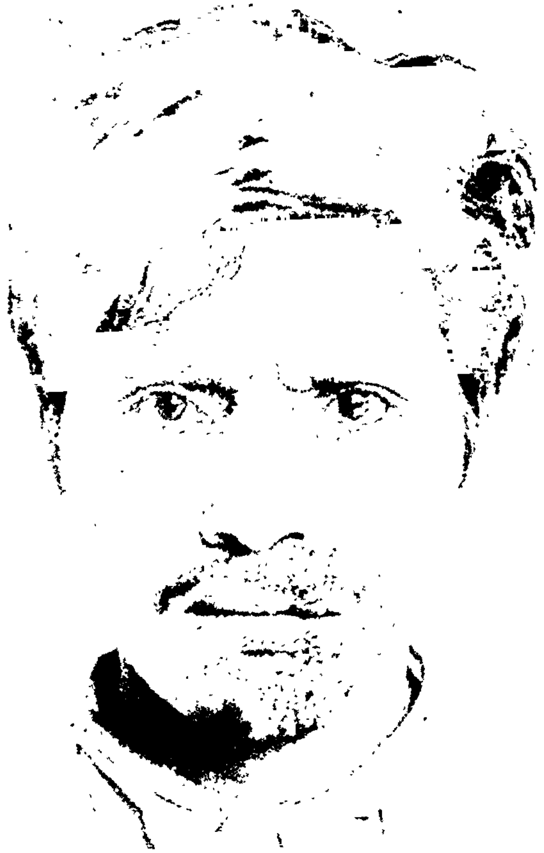

Fig. 2. Patient seventy-two hours after suturing infected wounds of the face.

Variations in procedure have been

omitted in this outline. Any number of intermediate steps are possible and are naturally indicated.

FACTORS INFLUENCING WOUND INFECTION

Altemeier[2] lists the following factors influencing wound infection: (1) virulence, types and number of contaminating bacteria; (2) the nature, location and duration of the wound; (3) the presence of foreign bodies; (4) the general condition of the patient; (5) the capacity of immunity response of the individual. Type and thoroughness of treatment determine the modifications of technic. It must be remembered that the profuse blood supply is a factor in the resistance of the facial tissues to infection.

The chemotherapeutical drugs will play a very important rôle in the control of wound infection. The use of sulfanilamide, sulfapyridine, sulfathiazole and sulfadiazine locally is recommended. The data accumulated from World War II experiences clearly indicate the local and systemic use of sulfonamides. Altemeier[2] points out the results obtained by the use of sulfanilamide locally and generally in the contaminated wounds at the Cincinnati General Hospital. He recommends its use in the control of infection.

A number of authors seriously question the effectiveness of gas-gangrene antitoxin given prophylactically. Overton,[20] however, states that it has been shown that to date the best available treatment to supplement surgery is a combination of sulfonamides and antitoxins. This is especially true of the use of antitetanic serum in every casualty with an open wound.

In the series of cases recorded at San elipe Hospital, the simple procedure tlined has been followed, and the results obtained have been satisfactory. Infected wounds of the face may be sutured with relative safety with this procedure (Fig. 1, c and d).

In modern warfare, out in far-flung outposts, where well appointed hospitals are not the rule and wounds are seen late, where time is an important factor and personnel for long and complicated treatments wanting, this method of suturing infected wounds of the face may be of value.

CONCLUSIONS

A review of existing literature on the treatment of infected wounds of the face indicates that nearly all authors agree that certain wounds may be closed primarily but that it is best not to close any of them in military surgery. Certain principles have been laid down to be followed in the management of infected war wounds, but how to deal with a gapping, infected wound of the face has not been fully studied.

The procedure presented warrants the following conclusions: (1) The method advocated is limited in scope to wounds of the face that communicate with the nasal cavity and the mouth. (2) Incision may be required to obtain access into the nose or mouth for drainage. (3) The wound is closed only on the skin surface, leaving free drainage into the nose or mouth, which is imperative. (4) Devitalized tissue, foreign bodies, and blood clots are removed. (5) The undeniable drawback of a drain into the nose or mouth is offset by the fact that the patient is more comfortable than with an open wound of the face. (6) The course of treatment is shortened and the cosmetic results much better. In a great number of cases plastic repair is not necessary. (7) Where other methods of treatment are not practical because of lack of time and accommodations, this method will rehabilitate a man for travel or duty in the shortest possible time.

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RÉSUMÉ

L'auteur décrit une technique pour la suture des plaies infectées de la figure. Il en résume les conclusions suivantes:

1. La méthode n'est utilisable que pour les plaies de la figure qui communique avec la cavité nasale et avec la cavité buccale.

2. Une incision peut être nécessaire afin de drainer dans la bouche ou dans le nez.

3. Il importe de ne suturer que la peau afin d'obtenir un drainage complet par le nez ou par la bouche.

4. Tout tissu dévitalisé, tout corps étranger, tout caillot sanguin doivent être enlevés.

5. Il y a quelque inconvénient de drainer par le nez ou par la bouche, mais le malade en est beaucoup moins incommodé que par une plaie béante sur la figure.

6. La guérison s'effectue moins lentement et les résultats esthétiques sont bien supérieurs. Dans un grand nombre de cas, une opération plastique n'est pas indiquée.

7. Quand d'autres méthodes de traitement, faute de manque de temps ou d'installation ne peuvent pas être employée, la méthode recommandée par l'auteur rétablit le malade dans une période de moindre durée.

SUMARIO

Descríbese aquí la técnica para la sutura de heridas infectadas de la cara con las conclusiones siguientes: 1° El método recomendado se limita a las heridas de la cara que comunican con la cavidad nasal o bucal. 2° Puede ser necesario hacer incisión para drenaje dentro de la nariz o boca. 3° La herida solo es suturada al nivel de la piel superficial, dejando libre drenaje dentro de la nariz o boca, que es indispensable e imperativo. 4° Todo tejido traumatizado o severamente dañado, coagulos de sangre, cuerpos extraños deben ser removidos. 5 La innegable desventaja del drenaje intra-nasal y bocal es com-

pensada por que el paciente está más cómodo que cuando la herida en la cara está abierta. 6° El progreso de este tratamento es más breve y el resultado cosmético más satisfactorio. En el major número de casos operación plástica no es necesaria. 7° Cuando otros métodos de tratamiento no son practicables por falta de tiempo y facilidades, este procedimiento rehabilita al herido para viajar y para volver a servicio en le más corto tiempo posible.

Выводы

Почти все авторы допыскают, что некоторые зараженные раны лица можно зашивать наглухо, но что в военной хирургии это неприменимо. Существуют показания для лечения зараженных ран лица, но лечение зияющих зараженных ран лица недостаточно разработанно.

Автор предлагает процедуру ограниченную в применении к (1) случаям в которых рана сообщается с носовой полостью или ртом; (2) иногда нужно приберать к надрезу для мого, что-бы проникнуть в нос или в рот; (3) рана зашивается только на поверхности, оставляя дренаж в нос или в рот; (4) мертвыя ткани, иностранные тела и кровавые сгусти удаляются; (5) неудобство дрена во рту или в носу компенсируется тем, что рана зашита, что более удобно, зем зияющая рана.

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The Present Status of Functional Liver Tests

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IN treating liver disease it is necessary to fully understand the mechanism of its production and the amount of functional damage which the given pathology entails. For this purpose reliable informative tests of liver function are very important.

This information can be obtained from two sources: (1) from a study of the normal functions and its variations; and (2) by the use of foreign substances, the variations of whose excretion through the liver furnishes the measure by which the general functional capacity of the liver is to be judged.

The important normal functions include: (a) the metabolism and storage of proteins, carbohydrates (glycogen) and fats; (b) bile formation and excretion; and (c) the formation, presence and variation of the substances involved in blood clotting.

(a) The metabolism of protein. This function is not shared to any appreciable degree by any other structure or organ, and the formation of the amino acids from proteins and their conversion into urea seems to be almost entirely a liver function. Normalcy of the protein metabolism has assumed in recent years a paramount position. The establishment of any degree of hypoproteinemia has been shown to be associated with moderately severe and far advanced stages of liver disease; its importance in interfering with the healing of wounds has been shown to be great; and the necessity of immediately correcting this abnormality to the normal cannot be disputed or overemphasized.

The relative proportions of serum albumin and globulin seem altered in various forms of liver disease, and the disturbance in quantitative relationship has been employed by some observers as a diagnostic test (Foley et al,[2] Snell,[9] Kirk,[4] etc.). Usually the change is a rise in the globulin fraction and a fall in the albumin. I, personally, do not believe the segregated test to be as important as the determination of any grade of total hypoproteinemia.

The carbohydrate metabolism is possessed to some degree by all muscular structures, but the liver is the great storehouse of glycogen. The galactose and levulose tolerance tests are not reliable because too many factors are involved in the mechanism of sugar metabolism. In addition, there is a wide variation in the rate of utilization of the various carbohydrates even in normal individuals.

(b) The production and metabolism of bile. The bone marrow and the spleen share this function, but again the liver is the important organ. Of the many tests suggested for this investigation, all concern themselves with basic conditions in which there is a deficiency in the production of bile (prehepatic), or more commonly, obstruction to the free outflow of the finished product from the liver (posthepatic). The chief tests of this function are the direct and indirect van den Bergh test (a modification of the Ehrich-Diazo reaction) and the icteric index. Both of these tests can, fortunately, be used quantitatively, as they estimate the amount of bile pigment in the blood stream. A differentiation is possible in the van den Bergh reaction inasmuch as the test is direct in the posthepatic and indirect in the prehepatic types of jaundice.

The Fouchet test is similar to the van den Bergh test. The bilirubin test of von Bergmann and Eilbott is very sensitive, utilizing bilirubin itself. It is very expensive and cannot be used when jaundice is present. In any case, there are differences of opinion regarding its reliability (Harrop and Barron,[3] positive; and Snell and Plunkett,[9] negative).

The presence of bilirubin in the urine gives the same information as the van den Bergh test.

The urobilinogen test is based on the fact that urobilin, which is produced in the intestinal tract, is passed through the liver where, if hepatic function is normal, it is completely converted into bilirubin; if function is abnormal, it is excreted in the urine as urobilinogen. If no urobilinogen is demonstrable, it may be assumed that biliary obstruction is complete. If present in dilutions greater than 1 to 20, it may be assumed that hepatic damage is extensive.

Estimations of the cholesterolemia have also been used, mostly, however, in the jaundice associated with the presence of gall stones. The relationship of the cholesterol ester content of the blood to its total cholesterolemia has been found to be changed (lowering of ester content) in jaundice resulting from acute hepatic degeneration (prehepatic) as opposed to jaundice resulting from common duct obstruction (posthepatic).

(c) Study of the blood-clotting function has also assumed an important position. It includes the study of prothrombin, thromboplastin, fibrinogen, calcium and vitamin K. The knowledge of the exact mechanism of this process is still confused, but the modern tendency, as the important studies of Quick, Stanley-Brown and others[6, 7] have shown, is to attribute a large part of the task to the liver. Evidence of this function is furnished in cases of hepatic injury, in which the prothrombin in the blood plasma is diminished.

Prothrombin deficiency is usually bound up with a lack of vitamin K and, clinically and pathologically, with severely damaged liver cells; bile salts are always diminished; and jaundice may or may not be present. The formation, storage and excretion of prothrombin is a very static phenomenon, and the available supply becomes rapidly depleted, especially in the absence of vitamin K and bile salts.

The disturbance of the blood clotting function is not fundamentally caused by jaundice *per se,* although it is commonly most pronounced then. The latest observations have, however, indicated that the disturbance of this function has become a very important test and that any grade of hypoprothrombinemia indicates severely damaged liver cells both in the presence and absence of jaundice and in early and late stages of the pathologic process.

The abnormal variations of each one of these functions have been used successfully as tests of liver function and as indications of disease. Other tests include: (1) the serum phosphatase test; (2) the Hanger cephalin floculation test; and (3) the hippuric acid test.

Estimations of the serum phosphatase level have also been used in obstructive jaundice, but are only of value in icteric conditions definitely associated with obstruction, for the [illegible] that sim[illegible] changes occur in oth[illegible] especially hyperparathyroidism, carcinoma of the prostate, bone tumors, etc.

The Hanger cephalin flocullation test, supplemented by the serum phosphatase test, has been used in determining the presence of liver-cell damage in the various forms of acute hepatitis as opposed to an obstructive jaundice.

One of the important functions of the liver is the detoxification of poisons, bacteria and other harmful substances. This fact has been utilized in the hippuric acid test, in which the detoxification of benzoic and amino acetic acids is accomplished by their conjugation into hippuric acid. The Quick hippuric acid test suffers from the objection that impairment can be demonstrated only after very extensive damage and that it indicates only one function of the liver. Inasmuch as the synthesis of hippuric acid may occur also in the kidney, the test should be checked from that standpoint.

There are other tests making use of the normal liver functions—the lipase test, the lactic acid test, the cinchophen test, etc., all of which have not received as much favorable comment as the others and are not in frequent usage.

Of all the dye tests of liver function, phenoltetraordophthalein has proved to be of greatest use, especially in radiography. Otherwise none of these dye tests has been of any considerable use clinically.

The total number of available tests of liver function and pathology is, then, considerable. Their complexity indicates either that no one of them has attained any universal degrees of approval, or that some of them have only a specific indication which is not always present. In many instances their use does not yield conclusive data; but the results of these laboratory investigations are clinically important in that they supplement and bolster up the clinically made assumptions of the presence and degree of severity of liver disease.

The primary objective of functional liver tests is to establish the presence or absence of disease or destruction of the liver parenchyma. At the same time the tests which utilize the normal physiologic functions and processes of the liver indicate their pathologic aberration from the normal. To be complete, the obtainable information ought to be capable of including: (1) an estimate of whether the disease and/or parenchymal destruction and its consequent physiologic disturbance is early, late and, possibly, at the borderline of insufficiency; (2) whether the disturbance is capable of being corrected; (3) the extent of such possible recuperation; (4) the potential possibility for further extension of the disease or parenchymal destruction; and (5) whether the pathologic process is irreversible.

Laboratory tests have not been as successful as we should like them to be in corroborating clinical diagnoses of hepatic disease. The tests depend on too many variable factors. The more reliable tests are too complicated or expensive for general use, except in a large hospital. Sometimes they are not suited to the particular case in question. They do not always give the desired information; and the results are sometimes ambiguous. The success of their clinical integration is variable. They are, however, somewhat more valuable in enabling us to judge the character and intensity of the underlying pathologic process, the severity and extent of the cellular destruction, and the stage of the total illness, of which there is usually abundant clinical evidence. Then, too, repeated venous punctures injure the veins which later may be urgently needed for important therapeutic purposes.

The statement of Boyce and McFetridge[1] is well taken: "that the patient's state may be extremely grave while this hepatic function remains within normal limits as one is able to measure those limits. In other words, the most accurate of tests must be permitted a reasonable margin of error, and it is possible, because of the enormous reserve capacity of the liver, for a number of things to be seriously wrong while hepatic function remains unimpaired, at least by available standards of measurement."

The interpretation of functional abnormal liver tests in medical and surgical patients, with and without clinical symptoms and without jaundice or other elicitable evidences of liver disease, as indicative of latent, early or occult liver disease, has been presented by a number of clinical observers who have corroborated these assumptions by biopsy or operative specimens, showing change of structural pattern, or in some instances by postmortem examination. Hepatic dysfunction or subclinical hepatitis, as indicated by similar tests, have been reported in other conditions—peptic ulcer, rheumatoid arthritis, skin disorders, neuroses and psychoses—by Wyler and Paulson. Nevertheless, these findings do not invalidate the others, because hepatic structural changes have on occasion been demonstrated in many of the conditions mentioned. Reliable functional liver tests, then, may have an important corroboratory function and value along similar lines in the preoperative study of surgical patients as indicating the presence of latent hepatic disease.

Nevertheless, in practical surgery, several tests are beginning to stand out because of their additional importance in indicating certain potential dangers for which we possess therapeutic preventive and/or corrective measures. These are: (1) hypoproteinemia; and (2) disturbances of the blood clotting function.

Furthermore, in practical surgery such available information has been successful in providing a proper basis for estimating the relative danger of any prospective operation. When investigation and therapeutic trial show that the pathologic process is irreversible, and when such basic diagnostic and functional laboratory information is reliable, well integrated with the clinical picture and well understood, it contraindicates absolutely any contemplated operation, necessarily useless under the circumstances, which would almost certainly be fatal.

There is, therefore, abundant need for reconsidering our entire conception of the normal and abnormal variations in determinable estimations of liver function as a help in diagnosis and prognosis of hepatic disease. It must be borne in mind that the liver, as well as all other parenchymatous organs, performs its functions by virtue of a definite and specific structural pattern. Any change in the latter must obviously cause a corresponding change in the ordinarily manifested function, with the proviso, however, that the latter, under some conditions, may not be demonstrable or recognizable for the reason that the functions are made good by an enormous compensatory effort in uninjured parts of the same organ, because of a newly assumed mechanism in the same organ, or by the assumption of any individual compromised function by another organ in the body. Functional disturbances can, therefore, only be adequately understood in conjunction with a thorough knowledge of the normal variations in injury or disease.

Age is a very important factor; and its effects must be thoroughly understood. Estimations of liver function which would be assumed to be abnormal in younger persons (those under 55 or 60 years of age) are usual in individuals above this age. In common with the changes which advanced age causes in all other structural parts and parenchymatous organs, similar changes in structure occur also in the liver, which necessarily affect the functional capacity in a corresponding degree; and these effects must tend to give pseudo-abnormal values.

Then, again, when foreign materials are used results differ according to the method and path of administration of the foreign material, *i.e.*, whether the material is given intravenously or orally; and, in the latter method, whether it reaches the liver through the arterial hepatic circulation or the venous portal channels.

Ordinarily, the question of fatigue—using this term in its broadest sense—in the exercise of any function enters also. I referred to this many years ago in connection with the cholesterol metabolism, pointing out the successive periods of accumulation of cholesterol bodies in conditions of fatigue and the disappearance of hypercholesterolemic states in periods of vigorous activity. Mann[5] has suggested the "straining" of the liver capabilities in order to bring out minor, or less easily demonstrable evidences of change of function. This is the fundamental mechanism, perhaps, in all methods using foreign substances.

In a much too large proportion of the cases, hepatic function is demonstrably maintained by compensatory effort, as bile is still present in the stool, since there is no impairment in glycogenesis nor evidence of failure to deamidize the amino acids, in that urea formation is unaffected and a progressive increase of nitrogenous products in the blood is observed. The clinical picture of well established disease, marked by abdominal distention, vomiting, rise in temperature, oliguria, appearance of albumin, casts and red cells in the urine, increase of residual nitrogen in the blood bleeding into the mucous surfaces and blood in the vomitus and in the stool, indicates only too well the severity of the illness and the fact that coma and death are approaching. In the absence of these manifestations, and in those cases in which the previously outlined tests of liver function are not available or give no reliable information, it is imperative to know the manifestations indicating a severe and approaching fatal condition. These are as follows:

1. Severe general symptoms, especially fever and chills. This item is possibly of least importance.
2. Anorexia or vomiting beyond the temporary or mild forms observable in the early stages of extrahepatic lesions of the biliary tract.
3. Shrinkage of the liver. This does not include the shrinkage of a temporarily swollen liver back to normal size. When this evidence is reliable and indicates a decrease below normal, it becomes the most important single clinical indication of destruction of hepatic cells and impending hepatic toxemia. The ultimate stage of such shrinkage is acute yellow atrophy.
4. Increasing jaundice.
5. Any tendency to hemorrhage.
6. Diminution of the secretion of urine, not accounted for by a corresponding diminution in the intake or fluid and with or without laboratory evidence of diminished renal function.
7. Demonstration of leucine or tyrosine in the urine.
8. Retention of nitrogen in the blood.
9. Signs of disturbed cerebral function — convulsions, stupor and

coma. These are evidences of impending or established hepatic ("cholemia") or of hepatorenal ("uremia") intoxication.

In some cases in which operation has been performed, additional facts are available:

10. An operatively demonstrated cirrhotic condition of the liver. This indicates far advanced disease and one in which terminal manifestations may occur at any time. The presence of any degree of ascites only intensifies the significance of such findings.
11. Undue prolongation of postoperative vomiting for which no other competent cause is demonstrable.
12. Sudden and large diminution in the discharge of bile from an external biliary fistula, other facts and factors remaining equal and unchanged.
13. Marked diminution in the amount of bile in the stool in the absence of a discharging biliary sinus, other facts remaining equal.
14. Appearance of postoperative jaundice or any pronounced increase in previously existing jaundice.

In clinical practice, important circumstantial evidence is available which gives knowledge and can be used as a rough measure of the degree of hepatic disturbance, both anatomically and functionally. In many cases(though not all) the kidney, which after the liver is the great excretory and detoxifying organ of the body, attempts to compensate for any loss of liver function. It succeeds to a certain degree, but commonly, sooner or later it fails in this respect also, because the kidney is not fitted to handle many of the normal products of hepatic metabolism nor the abnormal toxic bodies liberated in the normal or damaged liver cell environment. The kidney promptly breaks down in its turn and becomes an important and frequently a decisive factor in the total subsequent dissolution.

The renal complication, or rather, the stage in which combined hepatorenal symptoms appear, may occur when jaundice is absent. It is impossible to say to what stage the hepatic disturbance must progress before clinical evidence of renal involvement (hepatorenal syndrome) can be obtained. Under the circumstances any significant change in the kidney could be employed, therefore, in properly selected cases, other things being equal, as a measure of the preceding clinically recognizable disturbance in the liver.

The urine may be normal; commonly, however, the usual laboratory evidence of "nephritis" is present. Various degrees of oliguria are present; complete anuria, however, never occurs. The concentration of the urine is variable. These changes are, however, in no way diagnostic, because of the protein character of such changes; nor can they be used as a measure of any disturbance.

In clinical practice, however, functional disturbance in the kidneys is best measured by the degree and extent of any accompanying azotemia. Azotemia occurs in association with the following conditions: (1) severe and protracted vomiting; (2) immoderate and severe loss of intestinal contents, either through the natural exit or through an artificially produced intestinal fistula, especially when it is present high up in the alimentary canal; (3) diabetes with acidosis, especially in the stage of coma; (4) hypofunction (Addison's disease) or experimental removal of the adrenal glands; (5) traumatic shock; (6) extensive burns; (7) acute coronary thrombosis; (8) profuse hemorrhage; (9) diseases of the liver and biliary tract such as are under discussion in this communication; (10) circulatory failure and collapse following operation, trauma or disease.

With due regard to the above listed conditions, any degree of azotemia may be used as a measure of the severity and of the stage of any liver disturbance present. Some degree of azotemia may exist without any apparent effect on the clinical picture. In the presence of a liver lesion, however, it indicates a secondary renal lesion (hepatorenal syndrome). At times it is the first indication of an aggravation of the primary liver disease. Usually, however, there are asthenia, anorexia, vomiting and disturbances of the sensorium. Such a combination of symptoms and laboratory data indicates a very severe lesion or an advanced, late or terminal condition. And, in my experience, the level of the increased azotemia parallels the severity of the total disease. This is the value of azotemia in any liver lesion.

CONCLUSIONS

Tests of liver function are not essentially diagnostic and can only confirm previously made diagnoses of liver disease. Necessarily, no single isolated test can be of as great clinical importance as a series of repeated tests. When the test is repeated at regular intervals, the series of observations gives a picture of the changes which go on in the progression or retrogression of the liver parenchymal lesion. At the same time they furnish information about the potential risk in contemplated operations, and enable fairly accurate prognoses of the future course of events.

The quantitative condition and variation of the protinemia and the abnormal variations of the blood clotting function give the most important information. Next in order are the tests which measure the degrees of jaundice. None of the dye tests are of enough clinical importance except the phenoltetraidophthalein test, and the latter gives only radiographically its most important information of the mechanical conditions governing the excretion of the contents of the gall bladder. In the presence of such basic conditions, clinical assumptions of the pathology and disturbance of function and of the progression or retrogression of the underlying pathology must make additional use of other sources of circumstantial evidence, and of these the most important is yielded by the kidney because of secondary changes occurring therein (hepatorenal syndrome). The disturbance in the latter, especially the degree of any accompanying azotemia, can be used as a measure of the anatomic and functional changes in the liver.

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RÉSUMÉ

Les épreuves de fonction ne sont pas positivement diagnostiques et ne servent

qu'à confirmer les diagnostics faits précédement. Nécessairement, aucune épreuve seule ne peut avoir l'importance clinique d'une série d'épreuves répétées. Quand l'épreuve est répété à des intervalles réguliers, les séries d'observation nous renseignent sur le progrès ou sur l'amélioration de la lésion parenchymateuse hépatique. Ces séries en même temps nous renseignent sur les risques potentials d'une opération projetée et nous aident à formuler un prognostic.

La condition quantitative et les variations anormales de la protinémie ainsi que les variations anormales de la fonction coagulatrice nous fournissent des renseignements d'une grande utilité. Les tests des différents degrès de jaunisse sont utiles. Nul test colorant, le phémotetra-idopthaleine excepté, ne possède une grande importance clinique et ce dernier ne nous renseigne que sur les conditions mécaniques qui gouvernent l'évacuation de la vésicule biliaire.

L'assumption clinique de la pathologie fonctionelle et anatomique des voies biliaires et du progrès ou de la rétrogression des lesions doit être basée sur les trouvailles de laboratoire et sur les examens cliniques répétés. L'examen des fonctions rénales est d'une haute utilité car les troubles hépatiques déterminent fréquemment des lesions rénales (le syndrome hépatorenal). Les lésions rénales et le degré d'azotémie présent nous aide à évaluer les changements anatomiques et les troubles fonctionnels du foie.

las pruebas son repetidas con regularidad a intervalos, las series de observaciones así verificadas revelan los cambios de progresión o de retrogradación en la parénquima del higado. Al mismo tiempo las reacciones así obtenidas sirven de conocimiento del riesgo poderoso en caso de intervención quirúrgica y permiten un prognóstico acertado de los resultados posibles.

La condición cuantitativa y las variaciones de la protinemia y las variaciones abnormales en la función de la coagulación de la sangre ofrecen importante informe.

Otros datos necesarios son los cálculos del grado o indice de ictericia.

Ninguna de las pruebas de tintes y sombras opácas tiene suficiente importancia clínica con excepción de la phenoltetraidophthalein preuba, y aún ésta sólo nos da sombras radiográficas de la condición mecánica que revelan la expulsión del contenido de la vesícula biliar.

En presencia de estos elementos básicos, la presunción clínica de la patología y de los desarreglos de función y de los cambios en progresión y retrogresión en la estructura orgánica, harán necesario recurrir a otros datos de origen colateral, el más importante que és el riñón, por razón de los cambios secundarios que ahí se desarrollan (el síndrome hepatorenal). Los desarreglos renales, especialmente los cambios anatómicos y fisiológicos que existen en el higado nos dan ayuda diagnóstica.

SUMARIO

Examenes de la función hepática no son esencialmente diagnósticos, unicamente confirman la sospecha de enfermedad hepática.

Necesariamente ningún reactivo solo, podrá ser de gran importancia clínica como son las pruebas repetidas. Cuando

Выводы

Пробы функции печени не имеют чисто *диагностической оценки и употребляются* только для дополнения раньше поставленного диагноза. Пробы нужно повторять через регулярные периоды времени для того, что-бы уметь составить представление о патологическом процессе в парен-

химе печени, для правильного прогноза будущего течения болезни и для оценки риска предложенной операции.

Количественное состояние и вариации протиенемии и абнормальныя вариеции в функции сгущения крови дают найболее указания.

Затем следуют пробы определения степени желтухи. Из проб окраской только фенольтетраидофталеин имеет клиническое значение, давая через радиографию оценку механических условий управляющих выделением содержания желчного пузыря. В присытствии таких основных условий нужно прибегать к другим приемам для оценки патологического процесса печени. Из таких, самые ценные это пробы функции почек, а в особенности изучение степени азотемии, сопровождающей патологические изменения в почках.

DUES EXEMPTION FOR THOSE ENGAGED IN ACTIVE MILITARY SERVICE

At the meeting of the United States Chapter of the International College of Surgeons held in Chicago on March 30, 1941, it was unanimously agreed by the Executive Council that Associate Members, Members and Fellows of the International College of Surgeons are exempt from payment of dues during the period of active military service.

Restoration of Walking Capacity after Paralysis of Trunk and Leg Muscles

AN OPERATION RESTRICTING THE HIP JOINT TO MOVEMENTS IN TWO AXES

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EXTENSIVE paralysis of both legs combined with partial paralysis of the muscles of the trunk renders the task of restoring walking capacity extremely difficult.

By repairing interfering muscular contractures, one nearly always succeeds in enabling such patients to stand with the aid of an apparatus. However, walking with such an apparatus, which encloses both legs and the trunk, becomes most fatiguing. In addition, the paralysis of the iliopsoas muscle prevents flexion at the hip joint. The patient is compelled to move forward by twisting his trunk around its vertical axis. This kind of propulsion is very troublesome and slow.

The gait could be considerably improved if it were possible to rid one leg of the apparatus. In this case the leg confined in the apparatus would act as support only, and the free leg could be made to swing forward with the aid of the trunk.

The realization of the plan meets with the following difficulties: A leg, completely or almost completely paralyzed, behaves exactly like the leg of a skeleton, wired as for teaching purposes. When brought to swing, it does so equally in all planes; hanging down, it assumes a position of external rotation at the hip and of moderate flexion of the knee. Thus it can be used neither for walking nor for support.

In both the paralyzed leg and the leg of the skeleton these defects can be corrected by linking the great trochanter with the bony pelvis. This does away with the external rotation and allows movement in the sagittal plane only. We applied this principle in the following case.

TYPICAL CASE

The patient, a boy aged 10, was afflicted with widespread paralysis following anterior poliomyelitis at the age of five. In its acute stage the disease led to paralysis of the whole body except the muscles of respiration and deglutition. The final stage of muscle recovery was reached after half a year. He had not walked since the beginning of his illness, being moved about in a wheel chair.

Physical Examination: In lying position the thorax and arms were well developed. There was moderate lumbar lordosis. Abdominal walls were slack. Both legs were flexed at the hip and knee joints and rotated outwardly at the hip. Both feet were in extreme equinus position. Angles of flexion were as follows: Left hip flexion 155°, abduction 20°. Right hip flexion 160°, abduction 15°. Left knee flexion 150°, genu valgum 10°. Right knee flexion 170°. Left foot: extreme equinus position, toes bent plantarwards. Right foot: equinus pronation of the forefoot.

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*From Beilinson Hospital

The patient managed to sit up only by the aid of both arms, supporting himself on the mattress and squatting in order to gain a broader plane of support. The paresis of the abdominal wall was more evident in the sitting position. A pronounced kyphoscoliosis of the lumbar spine, convex to the left side, with compensatory curves, was manifest.

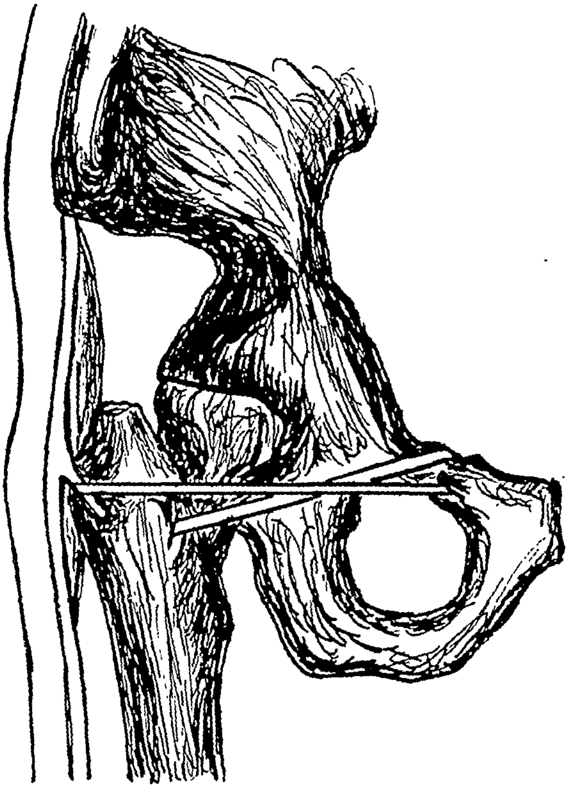
The patient was unable to stand, even when supported by other persons.

Neurologic examination of the muscles was much hampered by the existing contractures. In the left leg a weak response was obtained: Mm. iliopsoas, gluteus maximus, triceps surae, flexor digitorum longus. In the right leg: weak response, Mm. tensor fasciae latae, blutaeus maximus, biceps femoris; energetic response, Mm. extensor hallucis longus, extensor digitorum communis, Mm. peronei, triceps surae, flexor digitorum longus.

Treatment: First. the contractures were corrected under general anesthesia, followed by tenotomy of the left tensor fasciae latae and, in the right foot, transplantation of the extensor hallucis longus on the scaphoid bone and arthrodesis of the articulatio talo-cuneo-scaphoidea. After operation a plaster cast was applied, including and fixing both knee and hip joints in hyperextension.

After removal of the plaster cast six weeks later the patient was given an orthopedic apparatus, with a pelvic piece, for the left leg. Because of the lack of the right iliopsoas muscle and the weakness of the gluteus maximus no splinting apparatus was applied to the right leg, only an apparatus for the shank in order to preserve the result of the tendon transplantation and arthrodesis.

The first walking attempts showed that the right leg, which remained out of the apparatus, was not fit for walking or standing. In bearing weight the leg gave way, owing to the reasons mentioned above (outward rotation, flexion in hip and knee joints). Swung forward, the leg began to dangle irregularly; *i.e.*, the patient showed essentially the same phenomena as described above in the skeleton leg.


A strip of fascia lata links the great trochanter with the pelvis. This technic, while restricting the hip joint to movements in two axes, restores the walking capacity.

We now carried out the plan suggested initially, linking the great trochanter with the pelvis by means of a strip of fascia lata. First, a longitudinal incision was made downward from the middle of Poupart's ligament. The pecten ossis pubis was exposed. A canal was drilled through the superior ramus of the pubic bone.

Secondly, a longitudinal incision was made on the lateral aspect of the thigh, starting 5 cm. above the great trochanter and running down the whole of the thigh. A strip ½ inch wide and as long as the thigh was cut from the fascia lata and left attached to its insertion above the great trochanter. Its distal end was separated from the muscle. One assistant brought the leg into extreme inward rotation, the great trochanter thus being brought to the front. A canal was drilled through the great trochanter. The free end of the fascial strip was drawn through it and thrust through the superficial layers of the Y-shaped ligament, by means of a blunt instrument, until it was brought to the incision in the pubic region. Then the strip was led through the canal in the pubic bone from the lateral to the medial side, pulled tight and brought back the same way to the great trochanter. There it was again pulled tight, so that the leg remained inwardly rotated and fixed to the periosteum (see illustration). The wound was then closed and the leg retained in inward rotation for six weeks by means of a plaster cast.

After removal of the plaster cast the leg remained in moderate internal rotation. The patient was brought to a standing position with the aid of a calliper shoe, which, keeping the foot in slight equinus position, secures a firm extension in the knee joint. This, together with the elimination of the outward rotation in the hip, fits the leg for support and weight-bearing. In swinging forward the leg describes a pure sagittal curve, as illustrated with the experiment on the skeleton leg.

Results: The act of walking observed in our patient after all these measures is as follows: The patient swings the free operated leg forward by a quick movement of the body, bearing his weight on the leg which is still included in the apparatus. The equinus position of the foot leads to a strong although passive extension of the free leg at the knee, enabling it to bear the weight adequately. The confined leg is then swung forward by means of a similar quick body movement.

It goes without saying that intensive exercises were started at once to teach the patient to make right use of his leg.

Eleven months have elapsed since the operation. The patient is steadily improving. He is now able to attend school and to walk for an hour on sandy, uneven soil without tiring. He uses two walking sticks for support.

RÉSUMÉ

Une méthode est décrite avec laquelle les mouvements qui interviennent dans l'articulation de la hanche sont éliminés. En cherchant d'améliorer les résultats obtenibles avec un apparat qui confine les jambes et le bassin, l'auteur a fait l'opération décrite dans le rapport du cas. Elle a les suivants avantages: un, malgré la paralysie bilaterale, une jambe seulement est enfermée dans l'appareil; deux, la jambe libre devient utile pour soutenir et porter le poids du corp, en oscillant en avant elle décrit une pure courbe sagittale. L'opération réduit aussi le poids de l'appareil nécessaire.

SUMARIO

Se describe un método por el cual se eliminan los movimientos rotatorios interferentes de la articulación de la cadera. El autor hizo la operación descrita en el caso que se anota, tratando de mejorar los métodos obtenidos por medio del aparato que aprisiona la pelvis y los miem [illegible] Tiene [illegible] en-

tajas: primero, a pesar de la parálisis bilateral solo un miembro se coloca en el aparato. Segundo, el miembro libre se vuelve útil tanto para aguantar el soporte como el peso; al moverlo hacia delante describe una curva sagital. La operación también reduce el peso del aparato.

Выводы

Автор описывает процедуру, которая имеет следующие преимущества: несмотря на то, что обе оконечности парализованны, одна только заключенна в аппарате. Свободная нога таким образом пригодна для поддержки. Операция также уменьшает вес аппарата.

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Argumosa's Two Methods of Blepharoplasty

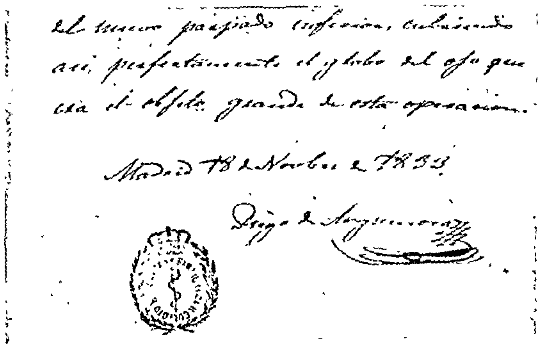
(Usually Attributed to Other Authors)*

M. MÁRQUEZ, M.D.
MEXICO, D. F.

IN A book written by me in 1936[1] I submitted definite proof that the Spanish surgeon Diego de Argumosa was the first to develop and practice successfully the two methods of blepharoplasty which the literature credits wrongfully to the eminent German surgeon Dieffenbach and the distinguished Hungarian surgeon Imre. Because the recent civil war in Spain limited the circulation of this book, I am taking advantage of the international good-will that always prevails at these meetings to again call attention to this injustice.

With reference to that type of blepharoplasty described in the text-books on facial and ophthalmic surgery as the Dieffenbach procedure, we claim, in accord with other Spanish authors, such as Calvo and Martin[2], Escribano[3], and Ribera[4], that it should be named after Argumosa, or if necessary, it may be called the "Argumosa-Dieffenbach blepharoplasty" in deference to the latter surgeon.

The above named Spanish authors, and particularly Ribera, have persistently demonstrated that Argumosa was the first to perform this operation. The latter author, in proof of this contention,



el nuevo párpado inferior, cubriendo
así perfectamente el globo del ojo que
era el efecto grande de esta operacion.

Madrid 18 de Novbre de 1833

Diego de Argumosa

Fig. 1. Copy of Argumosa's report of his operation, signed November 18, 1833.

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* Presented at the Third International Assembly of the International College of Surgeons in Mexico City, August, 1941

submits a copy of certain paragraphs from the original report that professor Diego de Argumosa read before a public meeting of the Faculty of the College of San Carlos (The Faculty of Medicine of the University of Madrid). In that original memoir, which is still on file in the medical library (Fig. 1) and in Argumosa's own surgical papers published several years later[5], one finds definite proof that the latter author developed and practiced this procedure in October, 1832 (the day is not stated), recording and signing his memoir (Fig. 1) on this operation on November 18, 1833, and that it was finally read at a public session of the Medical Faculty on April 3, 1834. On the other hand. Dieffenbach first practiced this procedure at the clinic of Lisfranc in Paris in the year 1834, and published it in 1836[6].

Argumosa was, therefore, the first to develop and to officially record this blepharoplasty; for this reason I feel that it should be called the "Argumosa-Dieffenbach blepharoplasty."

This procedure consists in refilling and repairing the inverted triangular-like defect of the lower eyelid that results from the resection of tumors in this locality by preparing a flap from the adjacent external skin area as follows: From the point *c* of the triangular defect *abc* (Fig. 2, I) either a horizontal or a slightly curved incision is made towards the temple (Fig. 2, *c d* or *c d'*), then from the point *d* or *d'* another incision is made parallel to the external edge *bc* of the excised triangle *abc* (*ed or e'd'*). The rectangular flap thus obtained (*bcde* or *bcd'e'*) is mobilized to the line *b e* or *b e'* and the whole flap is then brought inward to cover the triangular defect *abc* (Fig. 2, II), thus leaving another equally triangular defect in the outer side of the flap which is either allowed to granulate or is covered by skin graft.

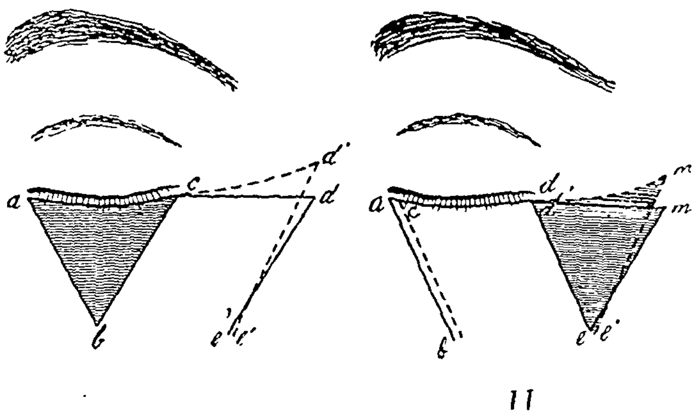

Fig. 2. Refilling and repairing inverted triangular defect of lower eyelid by preparing a flap from the adjacent external skin area.

In the Faculty of Medicine of the University of Madrid I found three old wax models which are now on file in the library of the ophthalmologic clinic depicting the above operation, and the same may be said for a picture that is printed in Argumosa's original text-book of surgery[5]. The following technic used by me successfully in a case of congenital coloboma of both upper eyelids and involving part of the eyebrows may be considered as a special modification of the above original procedure of Argumosa. After resection of the coloboma the triangular defect *ABC* (Fig. 3, I) was refilled by mobilizing a flap prepared as follows: A horizontal incision (1 cm.) extending lateralward (*D E*), is made from the outer commissure, then a vertical incision (*E F*) is made almost parallel to the external border (*B C*) of the defect; after joining the points (*C D*) through another incision the flap is thoroughly mobilized so that the borders of the defect are approximated and sutured (Fig. 3, II). The triangular defect left on the outer side of the flap may be allowed to fill in by granulation, since the ensuing scar will not interfere with the function of the lid. The functional and cosmetic results in this case were excellent.

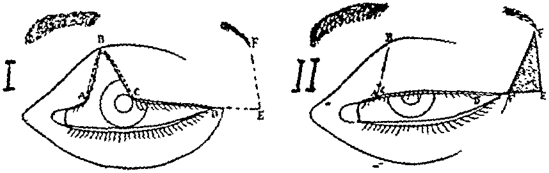

Fig. 3. Triangular defect refilled by mobilizing a flap so that borders of defect are approximated and sutured

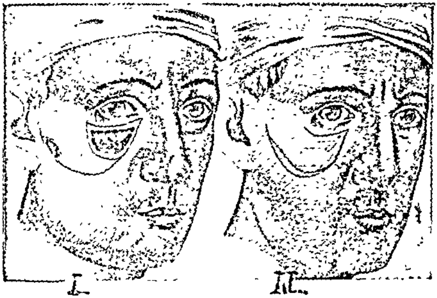

Fig. 4. Results obtained by Argumosa after mobilizing the flap.

The second procedure of Argumosa, and named by him "geno-blepharoplasty," was developed and practiced by this author in 1832 but, unfortunately, was not made public until 1858, when he published it in his *Resumen de Cirujia*[5]. Figure 4, obtained from t bove m tioned book, depicts one of the cases on which he operated for the resection of two telangiectatic tumors. The one located in the lower lid was resected by two circumscribing semilunar incisions, while the other one in front of the ear was removed with two incisions shaped like an almond, by continuing the incision resulting from the union of the last two in a curve with the concavity facing inwards and upwards until it met the internal portion of the semicircular flap. By mobilizing the flap between the two extirpated zones until the defect created is completely covered, he obtained the results shown in Figure 4, II. This second procedure of Argumosa leaves no loss of substance after the original defects are covered.

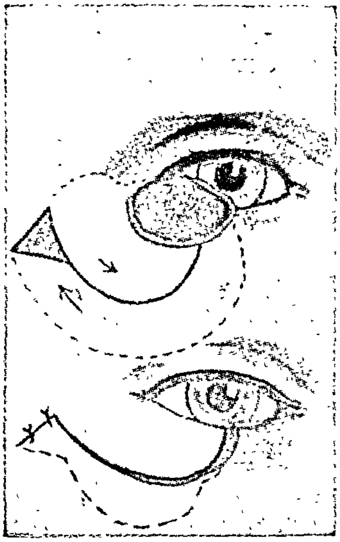

Fig. 5. Imre's procedure resects "Burrow's triangle to facilitate mobilization of upper flap, then freeing outwardly lower flap.

Imre's procedure[7] is somewhat similar to the above, for it only differs from it in that, whether or not there is another lesion in that region, he resects a small triangle, the so-called "Burrow's triangle" (Fig. 5, upper), which facilitates the upward and outward mobilization of the upper flap, then, by freeing outwardly the lower flap (see direction of arrows in Fig. 5), the inferior lip of the small triangle can be brought into approximation with its supero-external lip, covering the created defect. As may be seen, this operation is very similar to the one performed by Argumosa; therefore, it could be called the "operation of Argumosa-Imre."

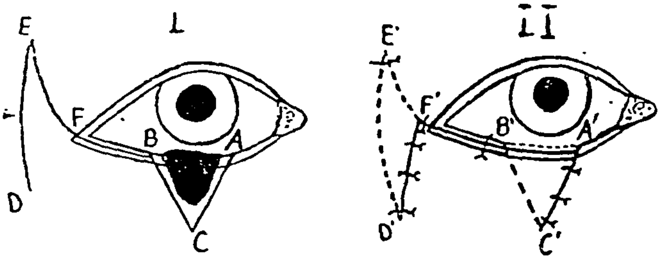

Fig. 6. Technic of reaction of small tumors of lower lid. Follow text.

There is another method which I have devised by combining the Argumosa-Dieffenbach blepharoplasty with the method of Szymanowski, by reversing the latter procedure. This technic which I have used successfully to cover the defects that result from the resection of small tumors of the lower lid may be described as follows (Fig. 6, I): After resecting an epithelioma from the free border of the right lower lid, the triangle-like area of healthy tissue (*A B C*) is extirpated; then the intermarginal incision (*B F*) is made and extended upwards and outwards, connecting the points *F E*, this latter incision being slightly curved. Next, the vertical incision (*E D*) is made and the resulting quadrangular flap (*C B F E D*) is dissected down to the level of an imaginary line connecting the points *C D*. By approximating the borders of the flap (*B F E*) to the edges (*F′ B′ A′*, Fig. 6, II) the defect is covered, leaving only the denuded area (*E′ F′ D′*) which can be considerably reduced by suturing the angles *E′ D′* so that the resulting scar becomes almost imperceptible.

SUMMARY

Two methods of blepharoplasty were first practiced by Argumosa: (1) The one attributed to Dieffenbach, but which was first developed and practiced by Argumosa in 1832, and later published by him in his *Resumen de Cirujia* in 1858. His original memorandum, the last portion of which has been submitted in evidence (Fig. 1) and which describes his method, was signed on November 18, 1833, and read at a public session in the Colegio de San Carlos of the University of Madrid. Dieffenbach, on the other hand, performed this operation in Paris, in 1834, and published it in *Casper's Wochenschrift* in 1835. (2) The method described by Imre in 1930 is substantially similar to the one practiced by Argumosa in 1832, and published in his *Resumen de Cirujia.* There is thus no doubt on the part of the author that Argumosa was not only the first to perform this operation, but also the first to publish it.

The methods which I have devised for the resection of colobomas of the upper eyelid and of small tumors of the lower eyelid are but variants of the Argumosa-Dieffenbach procedure.

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4. Estudios monográficos de Cirugía española (obra postuma).
5. Resumen de Cirugía, Madrid, p. 231, 1856.
6. Einige Bemerkungen aus und ueber Paris, Carpes Wchnschr., p. 7, 1935.
7. Lidplastik, Budapest, 1930.

RÉSUMÉ

Sans doute Argumosa a pratiqué les deux procédés suivants de blépharoplastie en 1832: (1) Celui attribué à Dieffenbach publié par Argumosa en 1858 dans son *Resumen de Cirugía.* Dans la Bibliotèque de la Faculté de Médecine de Madrid se trouve le mémoire originel, dont nous avons réproduit la partie finale, avec la date du 18 novembre 1833. Le mémoire fut lu en session publique du Collège de San Carlos de Madrid (Faculté de Médecine). Dieffenbach exécuta ce procédé à Paris en 1834 et le publia dans la *Casper's Wochenschrift,* 1835. (2) Celui décrit par Imre en 1930 est sensiblement le même qu'avait mis en pratique Argumosa en 1832 et publié aussi en 1858 dans son *Resumen de Cirugía* déjà cité. Il est hors de doute qu'Argumosa non seulement l'a exécuté, mais aussi il l'a publié longtemps avant.

Des variantes du procédé d'Argumosa sont celles que l'auteur (Márquez) a appliquées aux cas de colobome de la paupière supérieure et à l'extirpation de petites tumeurs de la paupière inférieure.

SUMARIO

Argumosa fué quien practicó primero los dos procedimientos siguientes de blefaroplastia: (1) El atribuido a Dieffenbach, publicándole en 1858 en su *Resumen de Cirugía* habiendo sido puesto en práctica en 1832. Consta archivada la memoria original (cuyo final se reproduce en el texto) con la fecha de 18

de Noviembre de 1833 habiendo sido leida en sesión pública del Colegio de San Carlos de Madrid (Facultad de Medicina). Dieffenbach la ejecutó en Paris en 1834 y la publicó en Casper's Wochenschrift, 1835, página 7. (2) El descrito por Imre en 1930 es sensiblemente el mismo que había sido puesto en práctica por Argumosa en 1832, publicado también en 1858 en su citado *Resumen de Cirugía;* no cabiendo, por tanto, duda alguna de que Argumosa no solo lo ejecutó sino que también lo publicó antes.

Del procedimiento de Argumosa-Dieffenbach son variantes las que el autor de este trabajo ha aplicado a los casos de coloboma del párpado superior y a la extirpación de pequeños tumores del párpado inferior.

Выводы

Argumosa (Аргюмоза) первым разработал две операции блефаропластики: (1) Первую, так называемую операцию Диффенбаха, которую Аргюмоза первым совершал в 1832 году и познее опубликовал ее в его Ресумен де Цирургиа в 1858 году. Его оригинал, который автор описывает (Фигура 1), был подписан им 18-го Ноября, 1933-го года, и был прочитан в открытой сессии в Колегио Сан Карлос Мадридского Университета. Диффенбах сделал эту-же операцию в Париже в 1834-ом году и отпечатал ее в 1835-ом году в Каспер Вохеншрифт. Метод описанный Имро в 1930-ом году почти ничем не отличается от операции Аргюмоза. Автор уверен, что первенство производства и описания операции принадлежит Аргюмозу.

Методу автора для резекции колобомы верхняго века и малых опухолей нижняго века представляют собой вариации операции Аргюмоза-Диффенбаха.

BOOKS RECEIVED

Books received for review are promptly acknowledged in this column; we assume no other obligation in return for the courtesy of the sender. Selections will be made for more extensive review, and, in most cases, review notes will be promptly published after acknowledgment of receipt has been made in this column.

Rehabilitation of the War Injured—A Symposium. Edited by William Brown Doherty, M.D., and Dagobert D. Runes, Ph.D. Articles on Neurology and Psychiatry, Reconstructive and Plastic Surgery, Orthopedics, Physiotherapy, Occupational Therapy and Vocational Guidance and Legal Aspects of Rehabilitation. $10. Philosophical Library, Inc., New York, 1943.

Dental Vocabulary: English-Spanish, Spanish-English, (Includes medical terms). Joseph S. F. Marie, with a Foreword by L. S. Rowe, Ph.D., LL.D., Director-General of the Pan-American Union. 159 pp., 3 illus. $4. Jacques Cattell Press, Lancaster, Pa. 1943.

Trail to Light. A Biography of Joseph Goldberger. Robert P. Parsons. One of America's greatest bacteriologists whose life and work make fascinating reading. 353 pp. $3. Bobbs-Merrill Co., Indianapolis, 1943.

New Technical and Commercial Dictionary (Nuevo Diccionario Técnico-Comercial). Compiled by Antonio Perol Guerreor, Industrial Engineer, Escuela Central de Ingenieros, Madrid, Chief Editor, *Editorial Técnica Unida.* Contains more than 50,000 words used in electrical, mechanical, chemical and marine engineering, etc., and many modern words referring to motorized warfare, aviation, meteorology, etc. The Chemical Publishing Company, 26 Court St., Brooklyn, N.Y.

Morals in Wartime. Edited by Victor Robinson, M.D., Professor of Medicine, Temple University School of Medicine, Philadelphia. Contents: (1) A General Survey from Ancient Times; (2) Morals in the First World War; (3) Morals in the Second World War. Illustrated. $3. Publishers Foundation, Inc., New York, 1943.

Flying Men and Medicine—The Effects of Flying upon the Human Body. E. Osmun Barr, M.D., member of surgical staffs of Emergency and Doctors Hospital, Washington, D. C. 254 pp. $2.50. Funk & Wagnalls Co., New York, 1943.

Appleton's New English-Spanish and Spanish-English Dictionary. Arturo Cuyas, Revised and enlarged by Antonio Llano. Contains more than six thousand modern words and twenty-five thousand acceptations, idioms and technical terms not found in any other similar work; with a pronouncing key and the fundamental tenses of irregular verbs. Ed. 3, with Supplements. $5.50; with thumb index, $6.50; full leather, $10. D. Appleton-Century, New York, 1943.

Editorials

Postoperative Prognosis in Tumors of the Adrenal Cortex

SURGERY, so intrinsically entwined with the advances in every branch of medicine, promises, as in the past, to bring forth new advances. The use of new technics has made postoperative prognosis more certain and accurate following removal of tumors of the adrenal cortex. Until recently, however, the rôle played by tumor transplants in postoperative prognosis has been almost entirely unknown or neglected.

Dr. Rudolph Nissen's recent contribution gives much food for thought to the hitherto meager information on this subject.

In a paper entitled "Tumors of the Adrenal Cortex: A Procedure Whereby the Post-Operative Prognosis May Be Improved," published in *Experimental Medicine and Surgery, 1*:309, 1943. Dr. Nissen reported a case of a woman 54 years old from whom a large cortical tumor of the left adrenal gland, weighing 670 gm., was removed.

Particularly in women, there is danger of adrenal insufficiency following removal of such a tumor. Therefore, in order to improve postoperative prognosis in this patient's case, a transplantation of two small pieces of tumor tissue was effected into the subcutaneous fat near the incision in the hope that the tumor tissue graft would continue to secrete the specific hormone and prevent the fatal outcome usually resulting from profound adrenal insufficiency.

In spite of subcutaneous, intramuscular and intravenous administration of every known variety of adrenal cortex hormone before and after the operation, for the first forty-eight hours the patient did not improve and the prognosis looked gloomy. A low blood pressure, high temperature, rapid pulse and respiration, vomiting, rash on the body surface and abdominal distention were present nevertheless. Slowly the clinical picture changed, and the patient's condition became normal, after which she was discharged from the hospital. By the end of ninety days all symptoms of masculinization had disappeared.

Following the operation urinalysis revealed a drop in *a*-ketosteroids from 58 mg. to 0.7 mg. and in *b*-ketosteroids from 16.7 to 0 mg. (Dr. E. J. Baumann).

The histologic report based on slides of the suprarenal made on removal of the grafts one year later showed that the transplants had not diminished in size and had retained their characteristic morphology (Dr. P. Klemperer).

It seems reasonable to ass

hormone was probably supplied from the transplanted tissue beginning with the second day, and its protective action carried the patient through the critical period following the operation until the opposite adrenal had an opportunity to reëstablish a hormone balance.

It may be argued that such transplants *might* become malignant; in such event radical excision may be done easily, because of ease of accessibility.

This study is an absorbing one, and further experimentation along the line initiated by Dr. Nissen may reveal the growing importance of this method in improving postoperative prognosis in certain types of tumor transplants.

Max Thorek.

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Do Urinary Antiseptics Cure Urologic Conditions?

FOR many years it has been the ardent hope of physicians and, in particular, urologists that some day a urinary antiseptic would be produced that would sterilize the urinary tract and clear up infections resistant to internal medication. One drug after another was developed after considerable travail, only to be set aside as more or less unsatisfactory and disappointing. Then came the sulfonamides, a veritable landmark in urology, and hopes again rose with the publication of the miracles performed by these drugs, particularly the successive modifications and improvements of the original sulfanilamide.

Although there is still much to be learned about these products, we have already acquired much definite knowledge of what they can do, and what is more important, we are gradually learning what they cannot do and why. Interminable painstaking studies have been made, and are still being made, which reveal the great therapeutic values inherent in these drugs, as well as the dangers involved in their indiscriminate use. One might say these dangers exist, to a lesser degree of course, even when the sulfonamides are employed with great care and caution, but we are learning how to detect the earliest signs of danger and how to combat it.

Chief among these dangers is the increased concentration of the drug in the blood, which is the direct result of the administration of heavy dosage without regard to the renal potentialities. It has been shown that a given dosage in cases with normal renal function produces no toxic symptoms; whereas the same dosage produces toxic reactions when the renal function is impaired. More recent experience, however, has demonstrated that heavy dosage is not always necessary. As Helmholz and others have shown, many infections of the urinary tract will clear up in a most satisfactory manner under minimal dosage, especially when accompanied by an adequate fluid intake.

There is little or no danger of stone formation or other damage to the kidneys from sulfadiazine, the least toxic of these drugs, when minimal doses are employed, in cases with good renal function. It goes without saying, however, that there are cases in which it is necessary to administer larger doses; but as these cases usually are hospitalized, with facilities for the early detection of signs of danger, the risk is greatly reduced.

The problem of sulfadiazine crystal concretions still remains partly unsolved. The principal factor in this complication is the heavy concentration of the drug in the urine. This may occur either in the form of the drug itself or in its acetyl derivative. The danger of concretion formation can be reduced by increasing the alkalinity of the blood and elevating the temperature, as emphasized by Barnes. This is confirmed by the observation that with the administration of large doses in certain conditions, notably pneumonia, concretions usually appear after a fall in the temperature.

The crux of the problem involved in the use of the sulfonamides lies in the fact that there is a definite element of danger in their use unless the renal function is good. Constrictions, sharp anatomic angles, atonic ureters and similar organic conditions, by their interference with normal renal function, naturally militate against successful results with these or any other drugs. If there is a moral to be drawn or a lesson to be learned, it is that urinary antiseptics do not and cannot cure organic pathologic conditions in the urinary tract and that in all cases resistant to sulfonamide therapy diagnostic urologic studies should be made; better still, they should be made before therapy is begun. If this is done, many or all of the serious complications of sulfonamide therapy may be prevented and disappointment in the results avoided.

A. L. Wolbarst

IN MEMORIAM

Dr. Ralph A. Bowdle, F.I.C.S., of East Ely, Nevada, passed away in October of coronary heart disease. Dr. Bowdle has been a Fellow of the College since the early days of its organization.

Dr. William M. Dunn, F.I.C.S., Atlanta, Georgia, passed away on January 4. Dr. Dunn was one of the earliest affiliates of the College. He did much to further its interests in Georgia and the South. His passing removes a valued Fellow from our organization.

Difficulties of a Chinese Army Surgeon

DR. J. HENG LIU, F.I.C.S.
WASHINGTON, D.C.

CHINA has been at war with Japan for almost six years, and most of that time had over 5,000,000 men in the field. Casualties have been many, but exact figures are not available. Particularly during the first six months of the war, the number of casualties ran up very rapidly to hundreds of thousands, making the care of the wounded a very difficult task indeed. At that time China still had her transportation and her big cities, but even so, concomitant with a series of retreats and extensive migrations of the population, the transportation of the wounded and their medical care immediately became a tremendous problem. Hundreds of field and base hospitals were quickly set up, and all hospital facilities, public and private, were commissioned for military service.

It is evident that in such a rapid expansion of the medical services in the army, the quality of service had to suffer. Rush orders were sent to Europe and America for equipment and supplies, and production for those items which could be manufactured in China was stepped up. The serums and vaccines which our armies used were almost entirely produced in Chinese laboratories by Chinese bacteriologists. Cotton, gauze and bandages were for the most part produced in China. Various simpler types of equipment, instruments, chemicals and drugs were also being manufactured in China, but the greater part of the medical necessities had to be imported.

As the blockade tightened up, it became more and more difficult to bring in supplies from the outside, and their transportation, first through Shanghai, had to be routed through Hongkong, Indo-China, Burma over the Burma Road, and now only by air through India.

The availability of personnel was also a serious problem. The Chinese army medical services now have a strength of about 30,000 medical officers, of whom only 7 per cent (roughly 2000) are graduates of medical colleges. The reasons for this state of affairs are quite apparent, but require certain explanations. The total number of all doctors in China (graduates of medical schools) is only about 10,000. This gives an average of one doctor to 40,000-50,000 population as compared to the average for the United States of one doctor to 700-800. Native doctors prescribing herbs are not included in these figures, because they cannot qualify as army doctors anyway.

Many of these doctors are still in occupied territories, and for one reason or another could not move into Free China. Cities like Shanghai, Peiping, Tientsin, Hongkong, Hankow, which have always had the largest numbers of doctors per unit of population, are not by any means even now depleted of their medical practitioners. Probably 40 to 50 per cent of the doctors in China still live and work in the occupied territories.

The Chinese public health services, maintained by the provinces as well as by the central government, together with the faculties of the medical colleges, probably employ 1500 to 2000 doctors. Their jobs are considered to be no less essential than those of the army medical officers.

There are thirty medical schools in the country which, with only one or two exceptions, had to be moved one or more times since the war started. The total enrollment in these schools is not over 3000, and only 400 or 500 doctors graduate each year. Various attempts have been made to enlarge these schools, but lack of equipment and teaching personnel makes expansion difficult. For some of them, being able to continue at all is already considered remarkable.

It is evident from the above that over 90 per cent of our army medical officers are unqualified and are really medical aides and dressers. It is upon their shoulders that the medical care of the wounded and sick in the Chinese armies has to depend. They give first aid treatment and do whatever they can in treating shock and hemorrhage. Their equipment is of the simplest nature, and the supplies and drugs they carry are necessarily limited in variety and in quantity.

Transportation facilities anywhere near the front lines are now entirely lacking. This is a factor necessary for the success of guerrilla fighting, but very unfortunate for the wounded soldier. Moving the wounded to properly equipped hospitals in the rear has now become so difficult that it may take weeks for a comparatively short distance.

There are many field hospitals and operating units, organized under the auspices of the Medical Department of the Ministry of War or by the Medical Relief Corps of the Chinese Red Cross, but the lack of transportation and the long and tortuous nature of the entire fighting front have made it difficult to provide this higher type of service to all combatants. Many of these units have fairly adequate equipment and qualified men to do major surgical work. Their effectiveness naturally depends upon the speed with which the wounded are rushed to them. Unfortunately, however, their operative work consists mainly of incision and drainage of infected wounds, amputations and the treatment of deformities.

There are a few figures available to show the amount of work done by the medical units organized by the Medical Relief Corps of the Chinese Red Cross. Between January, 1938, and June, 1940, the following figures are given:

X-ray examinations	30,300
Operations	35,730
Dressings	3,327,702
Medical treatments	515,073

Since 1940, after three years of fighting, medical conditions have become more important than surgery. Communicable diseases, particularly dysentery and malaria, increased tremendously. Sporadic cases of smallpox, typhoid and cholera appeared, but these diseases were easily controlled by vaccines. Diseases of malnutrition also increased because supplies of food became more difficult on account of lack of transportation or other reasons. The hospitals had far more medical cases than surgical ones. Beri-beri has become much less of a problem since all rice supplied to the armies is now unpolished, but other deficiency diseases, caused by lack or insufficiency of the other vitamins, have been on the increase.

All of this gives a very gloomy picture of the health of the Chinese armies. Like all the other services in our armies, the medical service strives heroically in doing the utmost with the least po equipment and supplies. The only l ening feature is the toughness of the Chinese soldier. It enables him to bear a great deal of pain, and it is remarkable to see how nature will take care of a lot of conditions, medical as well as surgical. It is a well-known fact that poor surgery under improper conditions can do much damage, and I personally have seen hundreds of bullet or shrapnel wounds heal by first intention without receiving any more care than the application of a simple first-aid packet.

These first-aid packets have been supplied to every soldier ever since the beginning of the war. Their contents have been changed several times. Some had only sterilized cotton or gauze, others had iodine or mercurochrome. It is only in recent months that sulfanilamide owder has been included in some of them.

A great deal of attention has been given to the training of the army medical personnel. Short courses of study are provided for the qualified doctors, medical aides, nurses and other technicians. Too much attention cannot be given to this work, which is being undertaken under the auspices of the Army Medical Administration of the Ministry of War. There is a Central Training Institute at Kweiyang with branches in the different war zones. For the thousands of medical aides who form the bulk of our army medical force, and upon whom the care of the wounded and sick soldier depend, the elements of surgical and medical care, sanitation and preventive medicine are taught in these schools. These courses enable them to give better service when they graduate and return to their army units.

It is perhaps of interest and gratifying to the Assembly of the International College of Surgeons to know that the United States has coöperated in this training program through the American Bureau for Medical Aid to China. Besides giving financial aid to this program, the Bureau has secured supplies and given technical advice of the most valuable nature. The American Red Cross also has helped, especially in sending supplies for the use of the units of this Medical Relief Corps.

To conclude, China's army medical service, like the other services in the army, has to work under tremendous handicaps. After six years of constant fighting, the only contribution it can boast of is its ability to give the best service which it is capable of giving. Many hundreds of army medical men have died in battle, and while they are not in any sense of the word good surgeons, they have given their best and thus have contributed towards winning of the war.

ERRATA NOTE

The Editor regrets that in Dr. Eurico Branco Ribeiro's article entitled "Modification of Sprengel's Incision in Ideal Cholecystectomy" appearing in the July-August, 1943, issue of the Journal, some errors have crept in.

Cholecystectomy should read *cholecystotomy* in the title, on page 399, paragraph 3, line 1 and paragraph 4, line 7; on page 400, paragraph 6, line 1; on page 401, paragraph 3, line 2; on page 402, paragraph 7, line 1 and on the same page, line 2 under Summary.

Figs. 11-12 and 19-20 should be reversed.

CHAPTER NEWS

CHINA

DR. JUI-HENG LIU

Dr. J. Heng Liu

WE are pleased to present a pen-picture of Dr. J. Heng-Liu, who was recently elected a Trustee of the International College of Surgeons.

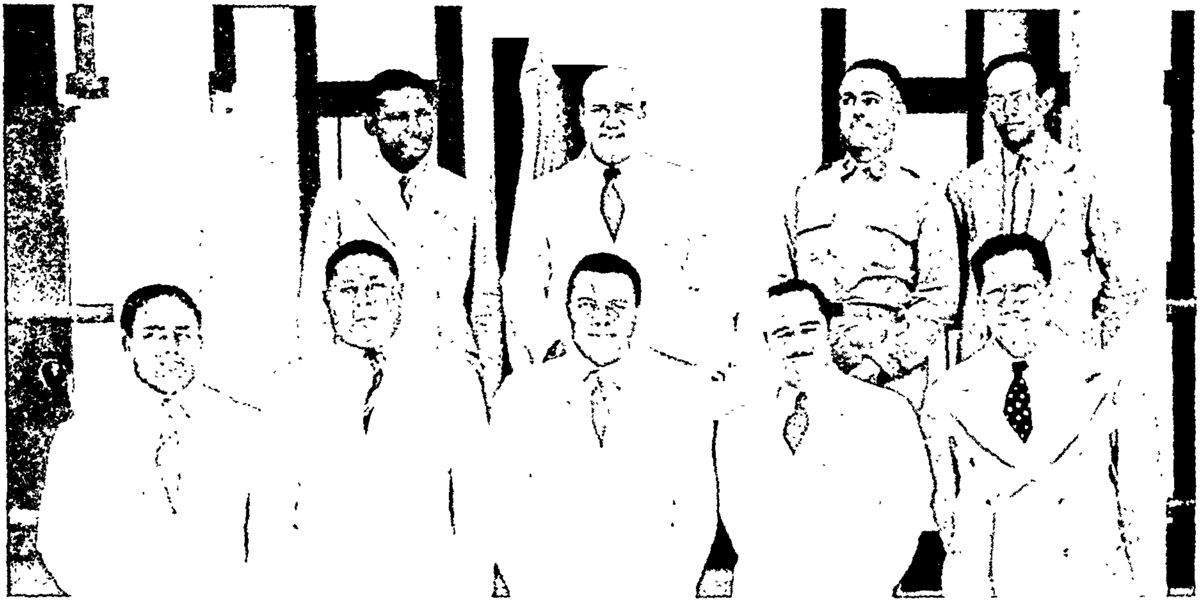
Dr. Liu received his Bachelor's degree from Harvard in 1909, from which he was graduated in 1913. At the present time he is Head of the Department of Medical Supplies, China Defense Supplies, Inc., Washington, D. C. He has been Associate in Surgery, Harvard Medical School of China, Shanghai, Associate Professor of Surgery, Peiping Union Medical College, Minister of Health and Director-General of the National Health Administration, Surgeon-General of the Chinese Army Medical Service, President of the Chinese Medical Association, and Vice-President, Health Committee, League of Nations.

In addition to these activities, he has now become one of the editors of the Chinese Medical Journal, a publication which was suspended for some time because of the exigencies of war conditions and is now emerging in a new format with a splendid editorial staff and a promising future in the interests of medical advancement and dissemination of knowledge pertaining to medicine, not only of interest to the Chinese people, but medical authorities at large. This journal, which has already established a reputation, will be welcome again in circles of medico-literary activity.

Dr. Liu is an idealist who is very much interested in the activities of the International College of Surgeons. His ingratiating personality has attracted to him many admirers.

HAITIAN CHAPTER

THE Haitian Chapter of the International College of Surgeons, organized on Aug. 29, 1942, under the Presidency of Dr. Martial Bourand was represented at the Fourth International Assembly by Drs. Elie S. Villard, V. Noel and Martial Bourand. This delegation, appointed by the President



Haitian Chapter. *At rear,* left to right: Drs. A. Garnier, M. Armand, L. Maximilien, A. Miot. *Front row,* left to right: Drs. L. Roy, C. Valme, Elie Sd. Villard, J. Thebaud, M. Bourand.

of the Haitian Republic to attend the Assembly, brought back an enthusiastic report to the Haitian Chapter.

Particular mention was made of the talks on shock treatment by Commander W. B. Hogan, organization of surgical service in the Soviet Army by Professor Lebedenko, cranial trauma by Dr. R. Rudolph Jaeger, bone reconstruction by Dr. Fred H. Albee, treatment of fractures by Capt. Shaad, circulation in shock cases by Dr. Jablons, treatment of burns by Comdr. Ralph C. Pendleton, heart lesions by Dr. André Crotti, and the effects of trauma on abdominal viscera by Dr. Wm. Seaman Bainbridge.

On the last day of the Assembly, June 16, Dr. Martial Bourand spoke on "Autopyotherapy in General Surgery and Eventually in War Surgery." Present on this occasion were Dr. Desiderio Román, Dr. André Crotti and Dr. Max Thorek, as well as Dr. Rulx Léon, Haitian Consul General at New York and former Director General of the Department of Hygiene and Public Health. Dr. Bourand spoke in French, but copies of his speech in Spanish and English were distributed among the audience.

Dr. Román praised the presentation of Dr. Bourand, stating that it opened new surgical and biologic horizons. Drs. Crotti, Elie S. Villard and Noel also commented favorably.

Dr. Bourand was elected to the Board of Trustees of the International College of Surgeons on this occasion. Before his return to Haiti he made two trips to Philadelphia, where he also spoke at the Pan American Medical Association, at the invitation of Drs. Chevalier Jackson and Desiderio Román.

MEXICAN CHAPTER

MEXICAN CHAPTER CONFERS DIPLOMAS ON NEW MEMBERS, OCT. 25, 1943

THE Mexican Chapter of the International College of Surgeons met on Oct. 25, 1943, at 9 P.M. in the *Salón de Actos* of the Faculty of Medicine of the National University of Mexico on the occasion of the conferring of diplomas on new members. Presiding at the ceremony were Dr. Gonzalo

Dr. Gonzalo Castañeda presiding at meeting of the Mexican Chapter of the International College of Surgeons, Oct. 25. 1943. At his right, Drs. Gustavo Argil, Director of the Faculty of Medicine, Francisco Fonseca, Secretary of the Chapter, and Avelino Gavaldón Salamanca; at his left, Dr. Manuel A. Manzanilla, International Vice-president of the College; at extreme right, Dr. Miguel López Esnaurrizar, National Regent

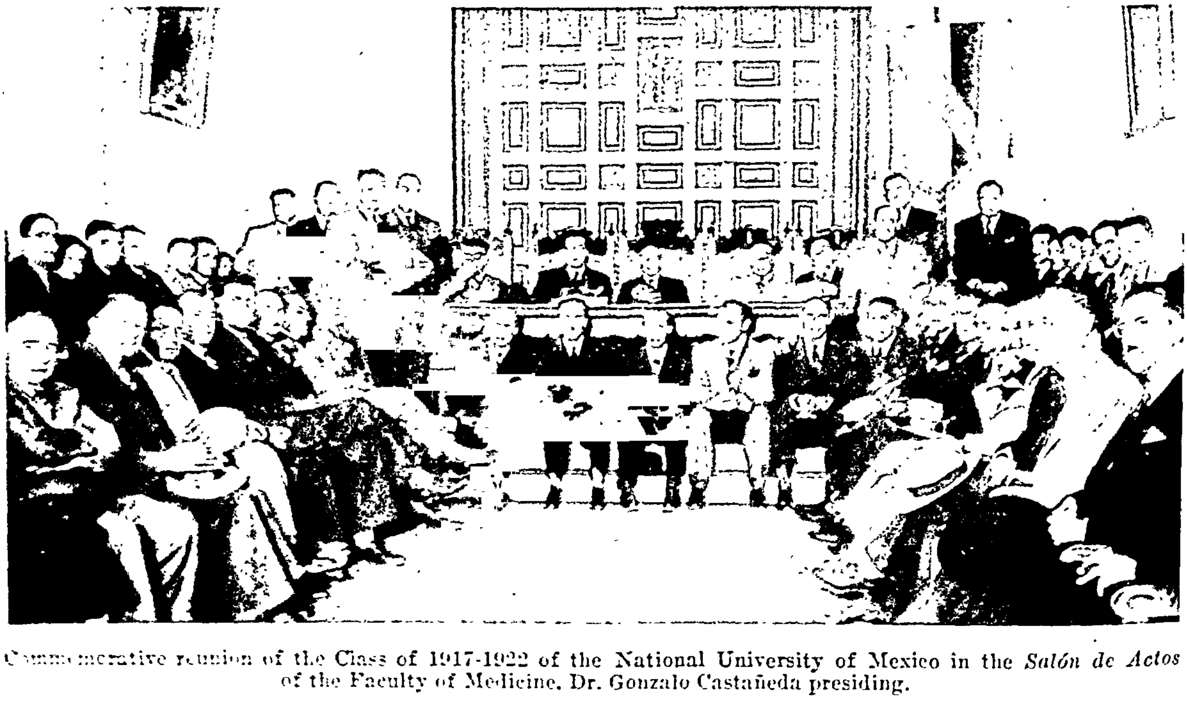
Castañeda, F.I.C.S. (Hon.), President of the Chapter and National Regent, in company with Dr. Gustavo Argil, Director of the Faculty of Medicine, who on this occasion received the rank of Fellow Honoris Causa, Dr. Manuel A.

Dr. Manuel A. Manzanilla, International Vice president of the College, confers the me dipl Fello
Honoris Causa on Dr. Gustavo Argil, Director of the Faculty of Medicine, Nati r xic
Center, Dr. Gonzalo Castañeda. At right, Dr. Miguel López Es

Class of 1917-1922 of the National University of Mexico.

Manzanilla, F.I.C.S. (Hon.), International Vice-President and Regent of the Chapter, Dr. Miguel López Esnaurrízar, F.I.C.S. (Hon.), Treasurer and National Regent, and Dr. Francisco Fonseca, National Secretary and Special Regent.

The ceremony was opened by the fine music of the Classical Quartette of the National University of Mexico. Conferring of the degree of Fellow Honoris Causa on Prof. Argil, Director of the Faculty of Medicine, in recognition of his scientific accomplishments and progressive and inspiring work on the Faculty in furthering surgical ideals, especially in the field of teaching, so much stressed by the College, followed. Prof. Manzanilla presented Dr. Argil



Commemorative reunion of the Class of 1917-1922 of the National University of Mexico in the *Salón de Actos* of the Faculty of Medicine. Dr. Gonzalo Castañeda presiding.

with the medal, reminding him that both were members of the University Medical Class of 1917-1922, which had just celebrated its Twentieth Anniversary, and from which the College drew so much cordiality and dynamic spirit of service toward the University, which it gratefully recognized as its Alma Mater.

Professor Argil expressed his satisfaction at having participated in furthering the advancement of the Faculty of Medicine and all the Mexican societies which work for the greatness of medicine and surgery. He referred particularly to the Mexican Chapter of the International College of Surgeons, which had performed so valiantly the task of promoting international scientific exchange with Mexico, under the direction and auspices of the Faculty. He manifested great pleasure at the acquisition of a closer relationship in the College with the beloved teacher, Dr. Castañeda, and his classmates, thanking them for the honor conferred upon him by the College. Dr. Argil spoke of the joy it gave him to have received this honor from Dr. Manzanilla, to whom he was bound by so many ties of recollection and friendship.

Dr. Castañeda spoke of the ideals of the College and the close affiliation between the Faculty and the College, affectionately recalling many of his former students, especially those of the class of 1917-1922, among them several who were then received into the Fellowship of the College, namely: FELLOWS: Dr. P. B. Molina, Dr. Carlos Malabehar Peña, Dr. Roberto O. Romero, Dr. Salvador López Herrera, Dr. José de la Fuente Riveroll, Dr. Alberto Rendón Peón, Dr. Alberto Enríquez Siquieros, Dr. Luis Raúl Flores and Dr. Gustavo A. Uruchurtu; MEMBER: Dr. Raúl Davila G. (promotion); ASSOCIATE MEMBER: Dr. Xavier Romo Díez.

Dr. Gustavo Argil, Director and Member of the Class of 1917-1922 of the National University of Mexico, unveiling commemorative plaque in the Faculty of Medicine.

CELEBRATION OF TWENTY YEARS OF PROFESSIONAL SERVICE

The celebration of twenty years of professional service of ten outstanding physicians of Mexico City, among them Drs. Manuel A. Manzanilla, F.I.C.S. (Hon.), Miguel López Esnaurrízar, F.I.C.S. (Hon.), and Gustavo Argil, F.I.C.S. (H.C.) was solemnized in the church of Santo Domingo on Oct. 23, at 10:30 A.M.

Other physicians so honored were:

José Perches Franco
Felipe Aceves Zubieta
Roberto Esquerro Peraza
Carlos Malabehar
Francisco del Río Cañeda
Ignacio Vertti Suárez
Adán Velarde Oaxaca

Father Mariano Navarro, O

celebrant of the mass and *Te Deum* which were the culmination of this auspicious occasion.

The International College of Surgeons extends its wishes for a long continuation of the professional careers of Drs. Manzanilla, Esnaurrízar and Argil, as well as those of their colleagues.

TURKEY

DR. FAHRI AREL, NEW DEAN OF MEDICAL FACULTY OF THE UNIVERSITY OF ISTANBUL

DR. Fahri Arel, F.I.C.S. (Hon.) has been appointed Dean of the Medical Faculty of the University of Istanbul. After training in the Surgical Department of the University of Geneva (Switzerland) and Leipzig Germany), he became Chief of a Division of Surgery at the Haseki Hospital in Istanbul.

In 1933 he was appointed Instructor of Surgery and in 1940 Associate Professor of Surgery in the First Surgical Clinic of the University of Istanbul.

Fellows of the International College of Surgeons will recall the excellent paper on bone grafting which Dr. Arel read at the Second International Assembly in New York in 1939.

His scientific writings consist of works on orthopedic and gastric surgery. He is the author of a monograph on *Surgical Treatment of Bronchiectasis* and co-author of a Turkish textbook on *Surgical Pathology*.

Dr. Arel is co-editor of the *Archiv* of the Medical Faculty of Istanbul.

It will be recalled that Dr. Arel was closely associated with Prof. Rudolph Nissen, F.I.C.S. (Hon.), while the latter was head of the Department of Surgery at the University of Istanbul (Turkey) after a brilliant career at the Sauerbruch Clinic in Berlin. Dr. Nissen is now following his surgical work in New York. It was through Dr. Nissen's influence that the Turkish Chapter of the International College of Surgeons has been founded, and it was he who disseminated the ideals of the College in European centers of learning.

UNITED STATES CHAPTER

DR. DESIDERIO ROMAN, PRESIDENT OF INTERNATIONAL COLLEGE OF SURGEONS, FETED; FIFTY YEARS OF PROFESSIONAL ACTIVITY

ON January 11 Dr. Román was honored with the following testimonial at a special luncheon given by the Pennsylvania State Medical Society:

"The First Councillor District of the Medical Society of the State of Pennsylvania presents this testimonial to Dr. Desiderio Román in recognition of fifty years of medical service faithfully performed in his community in the traditional ideals of the medical profession."

The occasion was momentous, inspiring and stimulating. We extend our heartiest congratulations to our learned and devoted standard bearer.

BOOK REVIEWS

Chemotherapy of Gonococcic Infections. Russell D. Herrold, B.S., M.D. Associate Professor of Surgery (Urology), College of Medicine, University of Illinois, Chicago, Ill 137 pp. $3 C. V. Mosby Company, St. Louis, 1943.

IN THIS monograph, Herrold brings up to date the data that have proved valuable in the management of gonococcic infection through the use of chemotherapy, based on a personal experience of some 1800 cases treated within the last two years. The amazing progress that has taken place in this field may be judged by the fact that the author discusses the relative merits of the five day and seven day cure-rates, whereas it seems only yesterday that we thought we were doing wonderfully well if we cured our cases in six to ten weeks without complications.

At present, says the author, there's no place for sulfanilamide in the treatment of gonorrhea. Sulfathiazole is considered the drug of choice, with sulfadiazine a close second. The question of dosage is of primary importance, the aim being to obtain the largest percentage of cures through one short course of treatment with a minimum daily and total dosage. Lack of scrupulous care in the matter of dosage may induce reactions which may be severe enough to terminate fatally.

For new infections, Herrold recommends the administration of 4 gm. daily in four divided doses for a period of five days. If there is a favorable clinical response with no discharge and both urines clear, observe clinically for one week; if there is no clinical activation following chemotherapy, proceed with determination of cure Greater accuracy and care in microscopic examinations and culture methods are urged in this connection

The carrier state, following chemotherapy, is fully recognized as being more resistant to activation than such conditions in the pre-sulfonamide era; but more knowledge is needed regarding the mechanism of eventual cure in the carrier type of case It is possible that the drug produces a decrease in the invasive power of the gonococcus and eventually through the antigonococcic influence of the natural forces of the body, the gonococci are eradicated

For refractory cases, which resist a second course of treatment, fever therapy combined with sulfathiazole to sulfadiazine, or vice versa, may be effective in some cases.

Further observations are necessary to determine whether sulfadiazine is less likely to sensitize patients than sulfathiazole. Extensive nervousness observed in patients taking sulfadiazine suggests that this drug, like its predecessors, presents certain hazards involving the nervous system, particularly in patients engaged in activities in which their personal safety and that of others are dependent on a normal mental status, such as aviators and others engaged in public or private transportation.

Local treatment is a definite aid in some refractory cases, probably due to the stimulation of the mucous membrane and possibly of its adjacent ducts. In some cases, good results have been obtained by combining sulfathiazole with gonococcic vaccine.

The author stresses the possibility of complications in the urinary tract which may develop during the treatment. The urine should be scrutinized for the presence of crystallization of the drug, microscopic hematuria and albuminuria. This is especially important in patients with marked reduction of kidney function. The various possible complications are considered in detail, all pointing to the fact that while the treatment of gonococcic infection with the sulfa products may be clinically amazing and epoch-making, it nevertheless constitutes a hazard of no mean proportions. Safety demands a daily appraisal of subjective symptoms and a routine examination of all possible objective signs of drug toxicity. Even with the less toxic sulfonamides, there is still a small percentage of patients who are too hypersensitive to the drug to permit an adequate concentration in the tissues for effective clinical results. In these patients other measures must be resorted to.

There are excellent chapters devoted to the determination of cure, infections in women and children, epidemiology and investigative problems; and the book ends with a long series of illustrative case histories which are well worth pondering. There is a fine bibliography.

The volume is a most timely and useful contribution to urologic literature and should be studied by all physicians who undertake to treat gonococcic infections In the opinion of this reviewer, the hazards of the gonococcic process have been largely eliminated by chemotherapy, but in their stead we have the perhaps greater hazards inherent in the new treatment. The most careful attention to clinical details is necessary if we would take advantage of their clinical effectiveness without incurring the risks of their toxicity. This volume carefully appraises these risks and shows how they can be minimized. The author is to be congratulated on this work—a difficult task well done.

A. L. Wolbarst

Trail to Light: A Biography of Joseph Goldberger. Robert P. Parsons. 353 pp. $3. Bobbs-Merrill Co, Indianapolis, 1943.

JOSEPH Goldberger, internationally known bacteriologist and benefactor of mankind, has been the subject of many works Joseph Goldberger, the man, has remained in obscurity until Dr. Parsons shed light on his personality, his characteristics and home life in his useful and interesting work on Joseph Goldberger, the man, the friend, the investigator and the scientist.

The author devoted much time to the study of Goldberger's life, collected information from authoritative sources such as Goldberger's wife, relatives and associates in the National institute of Health. During the influenza epidemic of 1918 he met Goldberger in person Dr. Parsons has skillfully portrayed Goldberger in his private and social life, related hitherto unknown facts of his life and included a number of letters which reveal Goldberger's personality.

On pages 337-344 appears a complete biography of the works of Dr. Goldberger. Dr. Solomon R. Kagan, the historian, had already published the same biography of Dr. Goldberger in *Medical Life*, September 1933, pages 440-445.

Its excellent style and logical arrangement make this a valuable addition to biographical literature. The book is printed on good quality paper and beautifully bound. It deserves a place in the library of both physician and layman.

S. R. Kagan.

The Story of Medicine. Victor Robinson, M.D. 564 pp. The New Home Library, New York, 1943.

DR. ROBINSON is a veteran medical historian who did pioneer work in the popularization of the history of medicine by correlating medical progress with economic, artistic and philosophic conditions that obtained in each period, and also by introducing the element of humor and wit into his writings.

This comprehensive book, *The Story of Medicine*, covers many important epochs in the development of medicine. It presents masterly descriptions of medicine in the Stone Age, in Ancient Egypt, in Ancient Greece, Greek medicine in Alexandria and Rome, Araian medicine, European medicine in the Middle Ages, edicine in the Renaissance, in the seventeenth and ighteenth centuries, modernization of medicine, medicine in America, especially in its sociologic aspects. The volume supplies an accurate history of medicine of the people the world over from the Stone Age to the present time.

Written in a vivid style, this book is recommended as pleasant and instructive reading to professional and layman.

S. R. Kagan.

Pioneers of Pediatrics. Abraham Levinson, B.S., M.D., Assistant Professor of Pediatrics, Northwestern University Medical School; Professor Pediatrics, Cook County Graduate School of Medicine; with foreword by I. A. Abt. Ed. 2. $2. Froben Press, New York, 1943.

THE author has presented in this volume a vast amount of interesting and instructive material on the medical achievement of the pioneers in pediatrics, all the way from the Greco-Roman period (the fourth century B.C.) to the present time. The author followed the rule of *multum in parvo*, and described the main work of a great number of medical men who directly advanced the knowledge of pediatries or paved the way for the development of child hygiene.

Dr. Levinson, being a noted pediatrician and medical historian, has succeeded in giving a clear picture of the pioneer work done in the field of pediatrics by representatives of the medical profession the world over, including Americans. The presentation of pioneer work in pediatrics usually requires voluminous books, but the author skillfully selected the most important ones and gave a bird's eye view of the advancement in this field by pediatricians as well as other scientists. He has selected many of the original descriptions of disease and gave them in condensed form, which constitutes a valuable addition to the book.

Of great interest are also the twenty-nine illustrations given in this remarkable volume. A bibliography of source material dealing with the history of pediatrics is also included at the end of the book, which offers the student who wants to dig further into the history of pediatrics an opportunity to broaden his knowledge.

The book is a real contribution to the history of medicine in general and to the history of pediatrics in particular.

S. R. Kagan.

History of Surgery. Richard A. Leonardo, M.D., Ch. M., F.I.C.S. 600 pp., 100 pl. $7.50. Froben Press, New York, 1943.

THIS comprehensive history of the development of surgery through the ages on all continents reveals extensive research by Leonardo. Contributions from allied physical and biological sciences and arts are included in the 56-page bibliography, many of whose references are not found in the Quarterly Cumulative Index Medicus.

The discussion of Hindu surgery discloses that the Hindus practiced preoperative preparation by diet in abdominal operations, as well as the use of anesthesia. Insensibility was produced by wine, Indian hemp and a drug called Samohini. Application of forceps in difficult labor, craniotomy and Cesarian section were known to the Hindus.

Early Japanese surgery was largely copied from Chinese practices. During the Heian period, 784-1186 A.D., incisions of abcesses, cauterization of ulcers and dog bites, abdominal surgery, suturing of intestinal wounds with threads from the bark of the mulberry tree and operative treatment for atresia of the vagina were known.

Erasistra, Celsus, Galen, Oribassius, Paul, Paracelsus, Vesalius and Avicenna are all properly listed as early surgeons, a classification occasionally lost from view.

Some omissions should be noted: p. 371, the Badianus Manuscript, 1552, translated by Emily Emmart in 1940; p. 332, the Leeuwenhoek Letter of 1676; p. 442, performance of suprapubic cystotomy in 1556 by Pierre Franco and perineal prostatectomy in 1639 by Covillard; p. 442, successful use of the intraurethral method of enucleation of the hypertrophied lobes by Paré in 1575, Civial in 1603, La Faye in 1726, Mercier in 1836, Guthrie in 1834, and the electro-cautery incision by Young in 1902.

An exhaustive discussion of the surgical specialties with a section on surgical societies and specialty Boards stresses coöperation in the development of surgery by the American College of Surgeons, the American Board of Surgery and the International College of Surgeons.

This amply and well-illustrated book could only be written by a surgeon, scholar and bibliophile. It should be placed on the library shelf alongside of Billings. The author and publisher are to be congratulated for producing a work of merit during the War.

W. J. Carson.

Medical Clinics of North America. New York number. Vol. 27, No. 3, May, 1943. Symposium on Infectious and Tropical Diseases. W. B. Saunders Co., Philadelphia.

THIS symposium on infectious and tropical diseases is a compilation of 20 monographs by authorities in New York and vicinity. They cover various diseases which are appearing in the United States following our participation in a global war. As a larger military personnel is sent to the tropics, the

necessity for becoming thoroughly acquainted with the characteristics of these diseases is paramount not only for the physician in the medical corps, but also to the one who remains at home. Therefore the appearance of this number of the Medical Clinics is timely.
M. T.

A Short Practice of Surgery. Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London, and R. J. McNeill Love, M.S., F.R.C.S., Surgeon, Royal Northern and Metropolitan Hospitals. Ed. 6. 1033 pp., 922 illus. 36s. H. K. Lewis & Co., Ltd., London, 1943.

THE latest edition of this classical work will be welcomed by all surgeons. This work has been brought up to date in every respect.

World War II has brought about changes in therapy and in individual interpretation which are embodied in this work in a masterly manner. The book is replete with informative material.

Special attention is given to injuries to the nervous mechanisms. The nature of the authors' contributions to continental surgical practice is well known in the United States. It is remarkable how much they have included in so limited a space.

The printing and paper harmonize with the exceptionally fine context of the book.
M. T.

Dental Vocabulary. English-Spanish, Spanish-English. Joseph S. F. Marie. 159 pp., 3 illus. $4. Jacques Cattell Press, Lancaster, Pa., 1943.

THIS practical vocabulary of dentistry which embraces also a limited number of medical terms, fills a long-felt need. In the foreword, Dr. L. S. Rowe, Director-General of the Pan American Union, states its importance "in fostering closer relations between the members of the dental profession in different sections of the Western Hemisphere."

This painstakingly prepared volume provides clear, intelligible translations of difficult scientific terms. A few errors in medical terminology show that proof might have been more carefully read; for instance, Graves' disease is erroneously listed as "Grave's disease."

The inclusion of common prefixes and suffixes is a valuable means of increasing the vocabulary. The single-word translations used in most cases make the volume a time-saving reference work. Listing of numerous *genera* of a word is particularly helpful, *i.e.*, 32 kinds of acid appear beneath the word in the Spanish-English section, 29 in the English-Spanish section. [illegible]

are giver [illegible]

Three [illegible]

legends in both English and Spanish, are helpful.
M. T.

Essentials of Gynecology. Willard R. Cooke, M.D., Professor and Head of the Department of Obstetrics and Gynecology, University of Texas. 475 pp., 197 illus. $6.50. J. B. Lippincott Co., Philadelphia, 1943.

AS THE name implies, the text has adhered mainly to the practical exhibit of the essentials of gynecology; very little time is wasted on theoretical arguments. Anatomy, microscopic pathology, symptomatology and therapy of gynecology are ably presented.

Chapter I, dealing with Anatomy, presents the excellent drawings of Palma and Amreicht, which are difficult to improve upon The line drawings, although they do emphasize the point under discussion, are very sketchy. The book is enhanced by actual photographs of pathologic specimens.

Chapter XVII, which deals with pre- and postoperative cases, has been very well handled.

The more commonly useful operations are presented in Chapter XVIII in step-by-step order. It is unfortunate that simple sketches do not accompany these steps.

The reading matter is very well presented. On [illegible] troversial subjects the author always gi[illegible] viewpoints than his own. This fine book [illegible] useful to student and practitioner alike.

Correction. The editors express regret that the names of Dr. Gunnar Jelstrup, F.I.C.S., Denver, Colorado, and Dr. Joseph Paul Alvich, F.I.C.S., Bronx, New York, have been inadvertently left out by the printer on the ro[illegible] of States Chapter members in [illegible] *ings* of the Internatio[illegible] Surgeons of the Thi[illegible] Assembly held in Mex[illegible]

ACKNOWLEDGMENTS

The *Journal* wishes to acknowledge receipt of the following publications sent to the Editorial Department:

Argentina

Boletín del Instituto de Medicina Experimental (Buenos Aires) Año XX, No. 61, April, 1943.

Boletines de la Sociedad de Cirugía de Rosario (Rosario) Año X, No. 4, July, 1943.

La Revista de Medicina y Ciencias Afines (Buenos Aires) Año V, Tomo 9, No. 53, Sept., 1943.

Revista de Medicina Cancerología (Buenos Aires) Año XVII, No. 165, 1943.

Revista de la Sanidad Militar (Buenos Aires) Año XLII, Nos. 8 and 9, Aug. and Sept., 1943.

Revista Oto-Neuro Oftalmológica y de Cirugía Neurológica Sud-Americana (Buenos Aires) Tomo XVIII, Nos. 7-8, July-Aug., 1943.

Sulfanilamidoterapia Local. Juan Nasio. Editorial Aniceto López, Buenos Aires, 1942.

Bolivia

Gaceta Médico-Quirúrgica de Bolivia (La Paz) Vol, 1, No. 2, Aug., 1943.

Revista de la Sanidad Militar (La Paz) No. 12-13, 1943.

Brazil

Brasil-Médico (Rio de Janeiro) Año LVII, Nos. 36, 37, 38 and 39, Sept., 1943.

Gazeta Clinica (São Paulo) Año XLI, Nos. 4 and 7, Apr. and July, 1943.

O Hospital (Rio de Janeiro) Vol. 24, No. 3, Sept., 1943.

Revista Brasileira de Ortopedia e Traumatología (Rio de Janeiro) Vol. IV, No. 4, July-Aug., 1943.

Revista Medico-Cirurgica do Brazil (Rio de Janeiro) Año LI, Nos. 4, 5 and 6, Apr., May and June, 1943.

Chile

Medicina Moderna (Valparaiso) Año 17, No. 1, Aug., 1943.

Revista Chilena de Higiene y Medicina Preventiva (Santiago de Chile) Vol. V, No. 4, Mar., 1943.

Colombia

Medicina y Cirugía (Botogá) Vol. VIII, No. 2, Oct., 1943.

Revista de la Cruz Rojo Colombiana (Botogá) Vol. XVI, No. 182, Sept., 1943.

Cuba

El Nuevo Hospital (Havana) Año II, Nos. 9 and 10, Sept. and Oct., 1943.

Revista Médica Cubana (Havana) Tomo LIV, No. 9, Sept., 1943.

Vida Nueva (Havana) Año XVII, Tomo LII, Nos. 1 and 2, July and Aug., 1943

Villaclara Médica (Santa Clara) Vol. XI, Nos. 5 and 6, Sept.-Oct., Nov.-Dec., 1943

Ecuador

Bioestadística en el Cosmos Ecuatoriano. Dr. Juan José Samaniego. Quito, 1943.

Prevision Social (Quito) No. 12, Jan.-Apr., 1943.

England

Proceedings of the Royal Society of Medicine (London) Vol. XXXVI, No. 12, Oct., 1943.

Mexico

Asistencia (Mexico, D. F.) Tomo VIII, No. 25, Sept., 1943.

Boletín de la Sociedad Mutualista Médico-Farmacéutica de Guadalajara (Guadalajara) Tomo XV, Nos. 6, 7 and 8, June, July and Aug., 1943.

Gaceta Médica (Villahermosa) Año V, No. 58, Oct., 1943.

Revista de Cirugía (Mexico, D. F.) Vol. XV, No. 5, Sept., 1943.

Revista del Instituto de Salubridad y Enfermedades Tropicales (Mexico, D. F.) Vol. IV, No. 3, Sept., 1943.

Revista Médica (Puebla) Tomo XVI, No. 161, Nov., 1943.

Revista Médica Veracruzana (Vera Cruz) Tomo XXIII, Nos. 11 and 12, Nov. and Dec., 1943.

Revista Mexicana de Cirugía, Ginecología (Mexico, D. F.) Año XI, No. 7, July, 1943.

Sugestiones (Mexico, D. F.) Año IX, No. 99, Nov., 1943.

Palestine

The Palestine and Near East Medical Journal (Jerusalem) Vol. II, No. 4, Aug.-Sept., 1943.

Puerto Rico

Boletín de la Asociación Médica de Puerto Rico (San Juan) Año XXXV, No. 11, Nov., 1943.

Union of Soviet Socialist Republics

Chirurgia (Moscow) No. 5-6, 1943.

Comptes Rendus (Doklady) de l'Académie des Sciences de l'USSR (Moscow) Vol. XXXVIII, No. 9 and Vol. XXXIX, No. 1, 1943.

Sovetskaya Medicina (Moscow) No. 5-6, 1943.

Voenno-Sanitarboe Delo (Moscow) Vol. 5-6, 1943.

United States

American Review of Soviet Medicine (New York) Dec., 1943.

Boletín de la Oficina Sanitaria Panamericana (Washington, D. C.) Vol. 22, No. 9, Sept., 1943.

Chinese Medical Journal (Washington, D. C.) Vol. 61, No. 2, Apr.-June, 1943.

The Puerto Rico Journal of Public Health and Tropical Medicine (New York) Vol. 19, No. 1, Sept., 1943.

Venezuela

Revista de la Sociedad Médico-Quirúrgica del Zulia (Maracaibo) Año XVII, Nos. 5 and 6, May and June, 1943.

Localization of Foreign Bodies*

JAMES F. BRAILSFORD, Ph.D., M.D., F.R.C.P. (Lond.), F.I.C.S.
BIRMINGHAM, ENGLAND

RADIOGRAPHY will indicate the presence of any foreign body which is lighter or denser than the tissues in which it is embedded, but it will not show material of the same relative density. Interpreted generally, this means that metallic and some glass fragments, as well as collections of air which have been forced into the tissues or gas which has been generated within by anaerobic organisms, cast a shadow. Pieces of clothing (Fig. 1), leather, fragments of wood and material of like density cannot be demonstrated by means of x-rays. Radiographs of wounded patients must be interpreted in this light.

Localization of a foreign body is necessary: (a) to determine its relation to the viscera, etc.; (b) for the purposes of aiding surgical removal. Especially in the former case, fluoroscopic screening of the patient will be necessary.

FLUOROSCOPIC SCREENING

Fluoroscopic screening will enable the radiologist to see whether a foreign body alters its position relative to other structures on movement of the patient, and to determine whether or not it is within or without a visceral cavity. This is most necessary in the case of penetrating wounds of the chest; for instance, movement of metal fragments in the current of blood within the heart is sometimes the cause of failure of visualization on a radiograph. If all radiographs were taken at exposure of less than one-twentieth of a second, probably even under these conditions foreign bodies would be revealed. Fluoroscopy is especially valuable in locating foreign bodies which have penetrated so far from the entrance wound that radiography of the immediate neighborhood of the wound would fail to detect them; it is not exceptional to find that a bullet has traversed almost the whole length or breadth of the body before [illegible] res[illegible]

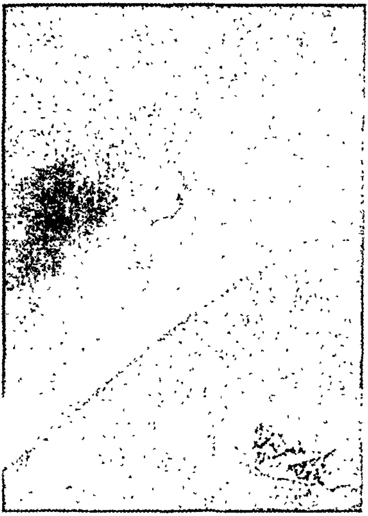


Fig. 1. Radiograph showing casing of bullet in upper arm with insert photograph of extracted casing containing portion of dirty khaki tunic—case of delayed tetanus.

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*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

Fluoroscopy can also be used to obtain a good general idea of the location of the foreign body by means of such units as the localizing profundoscope, but this should be regarded as an investigation preliminary to accurate radiographic localization. It will be realized that fluoroscopy has definite limitations; it is subsidiary to radiographic localization. Unbridled fluoroscopy has been responsible for unnecessarily increasing the time expended in searching for foreign bodies, for unnecessarily extending the incision and traumatizing tissues which, had the foreign body been localized accurately, would never have been touched. Lastly, if fluoroscopy is employed on a large scale in a busy hospital, it becomes lefinitely dangerous to the staff of the epartment.

ACCURATE RADIOGRAPHIC LOCALIZATION

The best interests of the patient and surgeon are met, and the latter's time for removal of the foreign body reduced to a minimum, if a careful localization is carried out.

Due thought must be given to the relation of the foreign body to overlying and neighboring structures and to the position which should be adopted by the patient when the time comes for operative intervention. Speed in localization should be reckoned by the time taken for surgical removal rather than that occupied by the radiography: unsuccessful attempts at removal, which are often lengthy procedures, are really the responsibility of the radiologist. In the casualty clearing stations, wounded patients require prompt surgical treatment, radiography for the localization of foreign bodies under these circumstances is usually impracticable, but fluoroscopic screening may be possible. Many foreign bodies will be found and removed by the surgeon when excising the wound. The track of those foreign bodies which have penetrated to a great depth may be situated in or near important structures and, in exceptional circumstances, after excising the wound as far as is practicable, more elaborate localization must be postponed until the patient is evacuated to the base.

In this connection it should be emphasized that the mere detection of a foreign body does not necessarily warrant an extensive surgical exploration for its removal. The size of the foreign body is not the determining factor, a large one may be situated in a relatively harmless site where it may never cause trouble, or where surgical removal would entail a greater risk than leaving it alone. On the other hand a small fragment may be close to some important structure which it will ultimately damage. In one case seen by the author a small metal fragment less than ¼ in. in size had lodged at the bifurcation of the common carotid artery, causing localized erosion of its wall and the production of an aneurysm. Accurate localization gave the surgeon considerable help in the successful treatment of the lesion.

A SIMPLE METHOD OF ACCURATE LOCALIZATION

It is a wise procedure to mark with a metal pointer the site of the entrance wound on the antero-posterior and lateral radiographs taken at the preliminary investigation, for these will give a good indication of the relative positions of the entrance wound and the foreign body—the major portion of the latter being in the neighborhood of the former. The point of a straightened-out safety pin laid on the film is excellent for the purpose. If the surgeon indicates that he wishes to remove the foreign body, these preliminary radiographs, or in those cases in which the foreign body has been discovered at a more distant site by fluoroscopy, the skin markings made at that examination can be used to decide the position in which the patient should be placed during surgical removal of the foreign body. The patient is put into that position and fixed, and to prevent any movement during the whole of the subsequent localization the affected part should be on a thin support under which one can slide the films before and after exposure. A metal marker is then affixed to the skin immediately over the point beneath which the foreign body is considered to be lying. The simplest and best form of metal marker used by the author is made from a piece of iron wire, such as is used by florists. It can be bent readily into the shape shown in Fig. 4 and to any desired size; ½ to ¾ in. is the most convenient size. These markers do not obscure the foreign body and, as each of the corners is distinctive, the relative position of the nearest corner to the foreign body can readily be recognized. Similar markers are then placed on either side of the area to be radiographed, in the position which the preliminary radiographs or marks indicate as the plane of the foreign body. The x-ray tube is then centered over the marker on the superior surface and a radiograph is taken, the film used being no greater in size than that necessary to show the relation of the metal markers, foreign body and adjacent distinctive skeletal features. A lateral radiograph is taken, either by movement of the tube into the desired position or by the additional portable unit which is often available for the purpose, the central ray of the tube being directed along the course of the markers placed on the skin. From these two radiographs it will usually be possible to put a permanent mark on the skin for the surgeon's direction. If, however, the original position of the metal markers indicates a serious error in judgment of the position, they should be reapplied in the better position now indicated and further similar radiographs taken. Being satisfied with the position of the foreign body relative to the markers, the point of the marker overlying the foreign body should now be marked on the skin by a small cross made with a sharp scalpel. This will not be removed in the subsequent skin preparation. If the radiologist is not able to be present at the operation to fix the patient in the position used for the localization, his report should be so worded that the position on the x-ray couch can be accurately reproduced on the operating table. The radiographs must accompany the patient for reference. Attendance by the radiologist will ensure that coöperation which is most desirable for rapid extractions. Such anteroposterior and lateral radiography will ensure successful extraction in the minimum time from most sites in the body. It will be apparent from examination of Fig. 2 that the ordinary anteroposterior and lateral radiographs may be very misleading as to the depth of the foreign body in a part with a spherical surface. If the outline of the spherical body represented in Fig. 2 as lying on an x-ray film HI be the part containing the foreign body X, it will be seen that when the tube I is centered over the mid-plane of the body the shadow X will fall on HI at B, and the outline of the periphery of the part will fall on C, suggesting that BC is but a slight exaggeration of the depth of the foreign body from the skin. Similarly, in the lateral radiograph MN, with the tube at II, DE suggests the depth of the skin localization has been obtained with the aid of a marker, a further radiograph, with the central ray III G forming a tangent to the skin surface at the site of the marker Y, will project the shadows of the marker and foreign body in their true relationship. Thus in Fig. 3, rays from the tube at III project the shadow of the marker Y and the foreign body X, on to the film at BO at G and F, GF being a practical estimate of the depth of the foreign body from the skin.

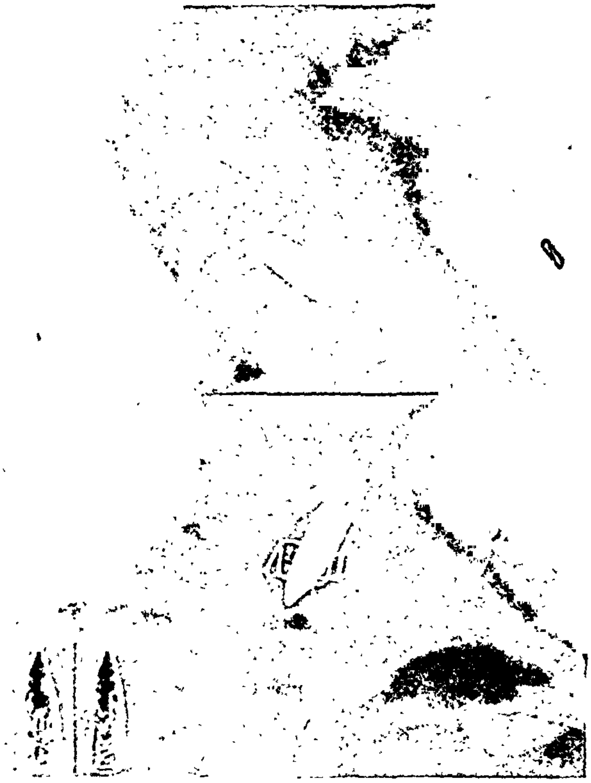
Fig. 2. Anteroposterior and lateral radiographs of a bullet in the spinal canal at the level of the 7th cervical and 1st dorsal bodies.

When the foreign body is so situated that its relation to certain elements of the skeleton or other important structures can be readily appreciated from the radiographs, reference to a cross-section atlas of the body may give additional useful evidence. The actual depth of the foreign body and certain distinctive skeletal features can be obtained by using a modification of the method devised by Mackenzie Davidson. In this, two exposures are made on one film; the tube, at a known distance from the film, is shifted a known distance between each exposure. When such a film is developed it will show a double image, not only of the foreign body and metal markers which may have been attached to the skin, but also of the outlines of the bones (See Fig. 4). The distance between any two shadows of the same point in an object can be measured on the film by compasses, and from this the accurate depth from the surface can be readily determined as follows: In a convenient

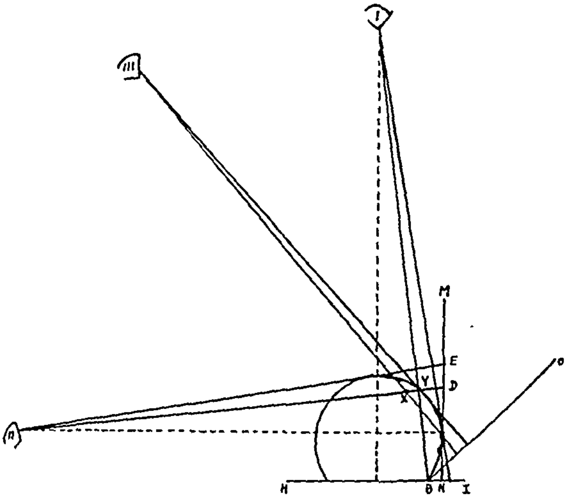

Fig. 3. Projection of surface of part and foreign body with three different positions of the x-ray tube and film.

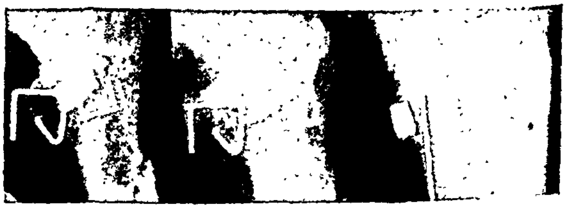
Fig. 4. Three radiographs showing a metal fragment on a plane with the lesser trochanter. The plane of the foreign body and the bony outlines can be determined from the double image radiograph, but the lateral indicates more clearly its relation to the bone. The lateral radiograph shows more clearly the relations of the bone, the probe in the sinus and the foreign body. Note shape of metal marker advised.

place in the x-ray department, a scale similar to that shown in Fig. 5 is kept. On the line AB the distance of the focal spot of the x-ray tube from the film is measured. The line is marked in inches and fractions of an inch. Generally speaking, it is best to adopt a standard tube—film distance somewhere between 15 and 20 in. The vertical line AC represents the distance the tube is moved during the two exposures—this also should be standard, say 6 cm. (most tube-stands have arrangements for this shift). To reduce distortion to the minimum the tube should be centered over the skin marker overlying the foreign body and then moved one half of the distance it is intended to move the tube between the exposures, say 3 cm. After the first exposure the tube is then moved over the mid-point to a similar distance on the opposite side of the marker, making a total shift of 6 cm. before the second exposure is made. On the vertical line drawn at D the distance between the two identical points of the images of the foreign body is measured by compasses, say DF. If a thread now be drawn taut between C and F it will cross AB, and the point at which it crosses, say X, gives the distance DX, which is the depth of that part of the foreign body from the film surface. If the measurement between the shadows of a point on the metal marker affixed to the upper surface of the skin overlying the foreign body is now made, its depth from the film surface can readily be determined (see Fig. 6), and from these the measurement of the distance of the foreign body from the metal marker is obtained by subtraction. In a like manner the respective depths of various bony outlines can be similarly obtained, but when it is desirable to compare these with the measurements of the foreign body the tube shift should be along a line at right angles to the bony outline. The radiologist should include the details of the relative positions in his report. If the foreign body is embedded in bone the position for trephining can be accurately given by a needle which is pushed into the bone in the direction of the central ray. (See Fig. 7.) The accuracy can be checked by further radiographs with the needle in position.

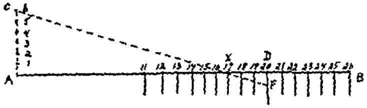

Fig. 5. Measure chart for x-ray department.

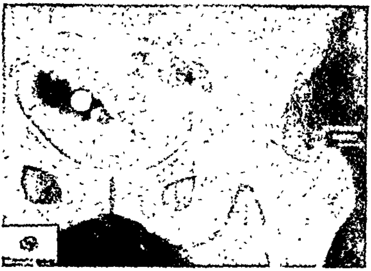

Fig. 6. Radiograph of a bullet in the bladder. The site was determined by depth estimation with the patient erect, then prone and then supine.

Accurate localization before operation ensures a rapidity of extraction which cannot be approached by the more empirical use of electro-magnetic probes.

If for any reason the surgeon fails to locate the foreign body at the site indicated, a needle can be fixed at the suspected exposed site and further radiographs taken as rapidly as possible. This is much more successful than screening.

LOCALIZATION OF GAS

Radiography affords the earliest method of detecting infection by gas gangrene organisms. Even small bubbles of gas can be detected (Fig. 8) If there is any doubt as to whether these are due to air which has been introduced at the time of wounding, further radiographs should be taken after two, eight and sixteen hours. These will indicate in the case of anaerobic infection an increase in the gas. It may take the form of a gas abscess or the fulminating type of interstitial and muscle infiltration. This can be recognized even through plaster if the radiographs are satisfactory. The gas abscess may be obviously surrounding a metallic foreign body, but in other cases the foreign material is invisible. Localization of the gas bubble by the method previously described will permit ready exploration of the site and extraction of foreign material, if present.

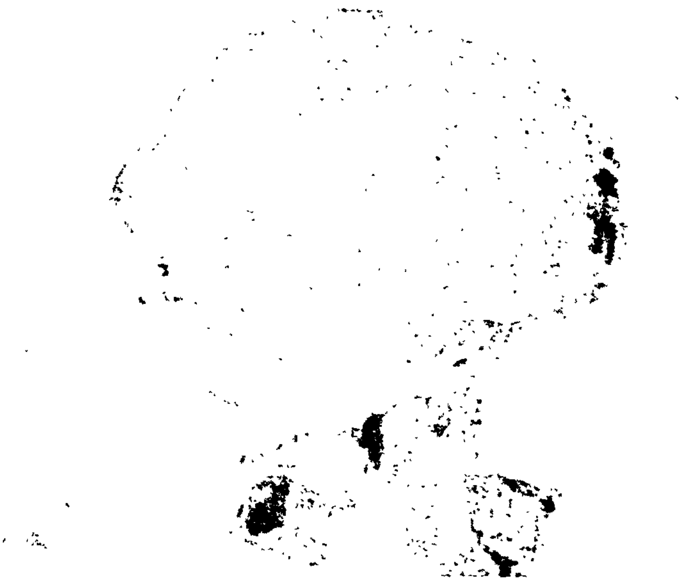

Fig. 7. Radiograph of the head of a patient who had a penetrating wound in the region of the nasion. Minute metal fragments are shown near the entrance wound and along the track of the largest fragment which is lying against the occiput. The point at which the skull needs to be trephined for the recovery of this larger fragment was determined by a radiograph with a metal marker immediately over the foreign body and a radiograph with the central ray at a tangent to the skull at that point.

Further details on localization are given in the articles cited.[1,2,3]

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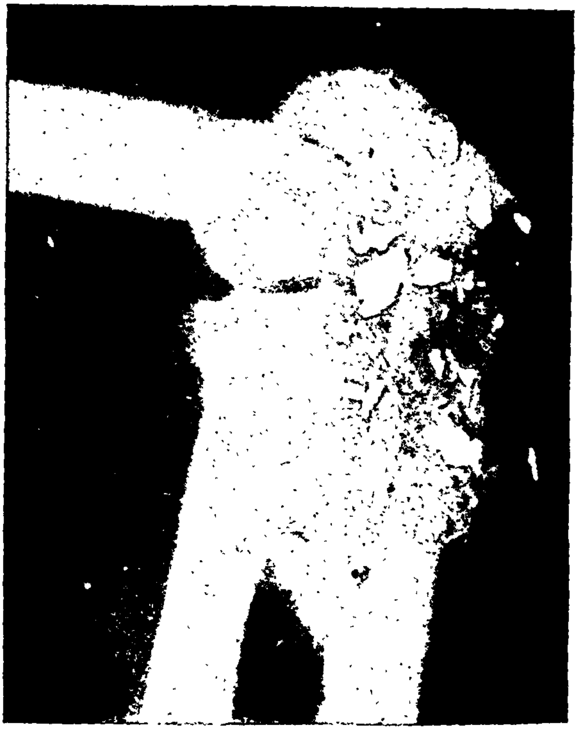

Fig. 8. Radiograph showing a comminuted fracture of the upper third of the ulna and multiple metal fragments as well as early signs of gas gangrene. Two small gas bubbles are shown—one anterior to the humeral condyles and one anterior to the neck of the radius. The early signs were ignored and within twenty-four hours the gas gangrene had involved the arm.

RÉSUMÉ

La radiographie permet de visualiser les fragments vitreux ainsi que les fragments de métaux. Les collections de gaz ou d'air peuvent aussi être visualisées par la radiographie. Tout corps étranger doit être localisé afin d'aider à son ablation opératoire.

L'auteur nous présente une méthode de localisation roentgénographique précise.

L'examen fluoroscopique est préconisé, surtout pour les plaies pénétrantes de la poitrine. Il peut être pratiqué dans les installations médicales du front où la radiographie n'est pas possible. A l'aide des rayons-x il est possible de faire un diagnostic précoce de la gangrène gazeuse.

SUMARIO

Fragmentos metálicos o de vidrio y colecciones de aire o gas pueden ser visualizados por la radiografía. Estos cuerpos-estraños deben ser localizados: (a) para determinar la relación y proximidad a la viscera; (b) para facilitar la extracción quirúrgica.

El método de la roentgenografía de localización exacta es presentado.

La fluoroscopía se recomienda, especialmente en casos de heridas penetrantes del pecho. Es practicable en estaciones de primer auxilios, donde la radiografía no es posible.

Por medio de los rayos-x, sin embargo, la infección de gas gangrena puede ser reconocida temprano.

Выводы

Осколки металла и стекла, скопления воздуха и газа могут быть отчетливо прединородние вещества должны быть локаставлены радиографически. Подобные лизованы для: а) определения их глубины и положения, б) хирургического ид удаления.

Описывается метод точной рентгенографической локализации

Рекомендуется рентгеноскопия, особенно в случае проникновения таких веществ в рану грудной клетки. Рентгеноскопия возможна на сортировочных пунктах, но исключается радиография. Путем применения рентгена газовая инфекция распознается раньше.

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Observations on Field Surgery

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MOSCOW, U.S.S.R.

FIELD surgery is inextricably bound up with the nature and tactics of military operations. Hence it follows that plans of organization and the volume of surgical work applied successfully in one war can hardly be entirely transferred to subsequent wars. The doctrine of field surgery cannot remain dogmatic in its strategic development because both the weapons and methods of warfare change with the years.

However, there are two conditions absolutely necessary for carrying out the basic aim of sanitary service in prompt restitution of wounded soldiers into the active armies and in surgical aid.

1. Uniform conception of the principles of surgery in the field.
2. Preliminary treatment of wounded at stages of evacuation (Burdenko, Smirnov).

The fulfilment of these conditions is inseparably bound up with the adaptation of the units already available. This problem is well understood: it occupies one of the foremost places among other very serious and important problems. Not a single country, not a single army can be satisfied with the present number of surgeons. Obviously it is necessary to mobilize physicians of other specialties, to prepare them during the war, to drill them "on the march," to instil into them the necessary routines and a taste for surgery. This problem, I repeat, is of enormous significance, and upon its solution depends the quality of the work in surgical aid to the wounded at the front and rear lines.

It must be said that this problem, which arose and was recognized at the very beginning of the war, was solved by the organization of proper distribution of the force of specialist surgeons who were leaders and consultants "not by word but by deed," as teachers to systematically prepare physicians of other specialties, and, especially, young physicians. It is obvious that under a single system of preparation the methods of procedure may and must vary; they must arise from the material environment of the given medical institution, and not only from this, but even from the region, its location at the front or rear lines, during maneuvers or on a stabilized front. It will not be erroneous if I state that in the U.S.S.R. this problem has been basically overcome and is being successfully dealt with daily.

Working on battle-fields, the army physician knows that the mortality among the wounded, in the majority of cases, is not due to grave, mortal wounds, but to lack of adequate first aid at the proper time, such as checking of hemorrhage, etc. The result of the treatment, the restitution of the soldier to the front, depends largely upon a proper and timely primary dressing.

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There exist three stages in the administration of the service of field surgery: treatment on the spot, evacuation and distribution. Which of these stages is the most important? Each war brings in major and minor corrections in answer to this question and, after each war, the existing system of organization of medical aid undergoes changes (Burdenko).

Field surgery cannot submit to a scheme prepared in advance with stabilized rules; not a single theoretically prepared system of surgical field aid can be carried out under actual battle conditions in the way it was conceived during peacetime. However, the military-sanitary service, improving continually, has its basic skeleton and a constant pattern; at the present time this skeleton is represented in the following form.

At the battle front first aid is generally administered by the wounded in person, by his comrade, or by the sanitary instructor or company aid man.

After that follow the dressing. stations, where the severity of the wound is determined and the primary first aid is corrected. Evacuation is assured to the next unit: the main dressing station, medical-sanitary battalion. From there the wounded are distributed to field and evacuation hospitals.

Two principles are united under this front line scheme: (1) Medical aid is brought nearer to the soldier; the wounded are treated at the front. (2) Normal evacuation of the wounded to the following stages is assured.

The fundamental principle of sanitary service of the Red Army is the approach of qualified surgical aid as close as possible to the wounded, and the entire system of organized sanitary service submits to this principle. Eloquent evidence of the fulfilment of the principle of medical aid to the wounded soldier is revealed by the figures on the administration of first aid in the front lines: more than 90 per cent of the wounded receive medical aid there; 5-10 per cent receive it behind the regimental or divisional echelon.

The time elapsed naturally varies in accordance with the actual sanitary conditions, but in the great majority it is such that the administration of medical aid takes place within the first few hours following injury. Nothing else could explain the percentage of soldiers rapidly restored to the ranks.

The Chief of the Medical Department, Dr. Smirnov, writes in one of his works: "Since maxillofacial surgery, neurosurgery, treatment of injuries of the bones of the extremities and thoracic cavity have evolved into independent disciplines, the condition has ceased to exist in which the surgeon was a physician for all the wounded, and any wounded was a patient of any surgeon. Hence, evacuation, in contrast to the former distribution of the wounded and sick, could no longer take place without diagnostic and transport classification and without specialized hospitals, and this brought about the necessity of supplying the front lines with a sufficient number of specialists in the above-mentioned branches of surgery. It also involved the organization of special hospitals both in front and rear lines. With a satisfactory solution of this problem there arose another, not less important, the problem of administering the maximum of requisite aid to the so-called slightly wounded. According to Oppel, the above term is mostly a sorting classification. Such wounded require complete surgical aid at the front lines, and do not require evacuation into the far rear. Treatment is to be accomplished in the front zone.

I am not going into the d [illegible] f th [illegible] organization of the sanit [illegible] the Red Army, nor into the details which bear upon the various links in the chain of activity of medical institutions. From my point of view, the principles of this service are most important, being, in the final result, to get qualified medical aid closer to the wounded soldier.

What innovations have there been in the administration of medical aid to the wounded of the Red Army, what installations have been established, what methods in the treatment of the wounded have been put into practice?

It must be borne in mind that very often the new is found in the old, as the old in the new; at times, a slight modification in the method of application of some measures suffices to transform them into something young and seemingly perfect.

The first basic problem in field surgery is front zone treatment of the wound. One of the greatest achievements in surgery since the World War, the careful, total excision of the wound, has still retained its significance and is observed in the Red Army without any exception. Primary suture has been prohibited since the first days of the war, and this decision has not been regretted.

The wide application of sulfa preparations is also undoubtedly a great achievement in surgery, and experiences during the war have proved its positive value, although even this remedy has its negative side. I am not speaking of the generally known reactions in the hematopoietic organs, inhibitory action on the regenerative properties of the tissues, etc.—we have to be reconciled to these—, but we must, nevertheless, bear in mind that the application of a sulfa preparation without adequate surgical measures may lead not only to the discredit of its value, but to a negative and, to our regret, generally belatedly recognized result. In application of sulfa preparations it is not sufficient to have under control the saturation of the organism, state of blood, temperature, pulse; one must avoid the enthusiastic idea that sulfa preparations put an end to infection in the wound and relieve the surgeon of the necessity for vigilance. The state of the wound must remain the unalterable criterion for the attitude of the surgeon.

The above applies also to the closed plaster cast which is extensively employed in the Red Army; it is excellent, especially if combined with sulfa preparations; and negative, if one forgets the wound, its biology, elementary requirements of surgery, and proper dressing of the wound.

Sulfa preparations and closed plaster casts are in reality great achievements of contemporary surgery, but they should not lull the vigilance of the surgeon. The timely removal of the plaster cast, control of the wound, at times additional dressing, assure a satisfactory result even in such cases as complicated fractures of the femur.

Professor Yudin, one of the most ardent propagandists in the U.S.S.R. for the application of sulfa preparations and closed plaster casts, made a critical analysis in one of his reports on the results of their application. In treating complicated injuries of the femur, to avoid premature healing of the wound beneath the plaster cast, Professor Yudin suggested the suture of the skin to the deep fascia of the thigh, thus assuring a constant evacuation of pus. The results of the application of this method were invariably favorable. Through this practice all cases considered septic were eliminated, and thus the threat of panosteitis, the new term for the old nomenclature of chronic osteomyelitis, disappeared. This latter term, according to investigations conducted by Davydovsky, does not correspond either morphologically or clinically to the nature of the process in gunshot wounds of the skeletal system.

On the other hand, notwithstanding the excellent results of treatment of complicated fractures of the femur according to Yudin's method, it became apparent that insufficient care of the wound may lead the wounded man into the state called "wound phthisis"; in the old nomenclature by the Russian genius, N. I. Pirogov, "wound phthisis" is not a sepsis, with the characteristic degenerative modifications of the parenchymatous organs; it is a peculiar clinical state in which the wound is as nonreactive as the patient. Degeneration of organs is absent, and atrophy becomes foremost; the blood is sterile and there is leukopenia or a negligible leukocytosis, either with normal or almost normal number of erythrocytes. Locally, in the region of the wound there is absence of tissue reaction with more or less pronounced quantity of pus. Neither blood-transfusion, stimulating remedies, nor vitamin ingestion will produce any beneficial effect; amputation, when finally decided upon, often fails to save the patient. The patient cannot stand the operative trauma; he cannot stand general or local anesthesia; the operation is too late. An analogous picture is presented in injuries of knee and hip joints. Thus the decision as to the necessity for radical surgery is a decision which has not been made at random, but it is the result of countless observations, high hopes, and cruel disillusionment, and of sufficient information as to what has occurred in the past. The plaster cast and sulfa preparations are excellent and invaluable, but only in early and timely application. In accordance with the anatomic form of the injury of the joint terminals, we apply early arthrotomy and excision, and finally amputation, but not during the nonreacting state of the wounded.

Arthrotomy of the knee-joint, as proposed by Yudin, must, in addition to the dressing of the joint, include suturing of the synovial capsule to the skin. A thick cast assures a smooth course, but the surgeon must bear in mind that threatening or manifest osteitis is not going to be checked by arthrotomy. Disillusionment will soon follow, and the otherwise advantageous incision will be of no avail. It is the task of future investigations to discover fully the cause of the state resembling Pirogov's "wound phthisis." Nevertheless, if one remembers the history of surgery of the last World War, this state was rarely recognized; possibly this was due to insufficient knowledge, or else we may think that sulfa preparations and plaster casts are responsible for the condition. I purposely do not mention avitaminosis; everywhere and always, in every war, avitaminosis has existed, exists, and will exist; a single wound may become the cause for its appearance. At the present time the organism of the Red Soldier is no less saturated with vitamins than it was at the beginning of the war, but "wound phthisis" also existed at that time; with the activization of surgical work, with instillation of the principle of specialized hospitals, these states began to decrease and are now encountered less frequently. The plaster cast is examined and corrected at the front base hospital before the patient is sent to the evacuation distributing center whence he is transferred to a specialized hospital. Its application in the system of echelon treatment has a definite place, although it demands further investigations, perfecting, determination of indications and contra-indications, and, certainly, constant supervision.

In connection with the above,
to state that even before the
chief and teacher, the ac

denko, allotted a great amount of time to the study of the biology of wounds, and his school produced numerous works which established a definite correlation between the clinical course of the wound and the morphology, biology and chemistry of pus.

Undoubtedly clinical practice gives us much; but practice during a period of traumatic epidemic, during a period of war, bespeaks the fact that clinical practice alone is not sufficient.

The division of the process of the healing of a wound into periods or phases, as made by Profs. Girgolav and Rufanov before the beginning of the war, gives the practicing surgeon only general guidance in treatment of the wound. Nevertheless it is necessary, because it indicates what antiseptic measures are to be applied in various types of wounds. In the stage of hydration (first phase of the wound process, according to Rufanov), there must be elimination of everything that might hinder the natural course of the process taking place in the wound, and all remedies accelerating this process are recommended. In the second place, a different arsenal of remedies must be applied. Of course this is merely schematic; the process of a wound cannot be fitted into any two or even more periods or phases, and two different processes, periods, or phases may be combined in one wound. Nevertheless, the surgeon must have a conscious perception of the wound, and it is also obvious that the attempt to discover an objective test in the evaluation of the wound is both valuable and necessary.

The methods of Drs. Pokrovskaia and Makarova are of special interest in this regard. They allow, by means of "prints" of the wound surface, and from the estimation of the cell exudate, judgment of the course of the process, and especially its deviations. Thus, the subsequent treatment finds, as it were, a relatively objective evaluation. This method of evaluation of the wound is widely established in hospitals. On the strength of the above observations, sulfa preparations must occupy a limited space in a definite period or phase. Of great importance in practice are the observations by the authors that the cytological composition of the cell exudate in anaerobic patients is characterized during the first days of the disease by extreme scarcity of formed elements; as a rule, monocytic cells are absent and the complicated microbial association, consisting of suspected anaerobes and various representatives of aerobic microflora, is discovered without any difficulty.

The proposal for a rapid directive diagnosis of anaerobic infection is not new, but in the above form, which studies simultaneously the dynamics of cell reaction and microflora, it is worthy of attention.

RÉSUMÉ

Dans l'armée soviétique l'aide médicale est basée sur les principes fondamentaux: (1) que le soldat blessé doit être soigné aussi proche que possible du champ d'action; (2) traitements préliminaires aux différentes étapes de l'évacuation; et enfin, (3) distribution des blessés aux hôpitaux spécialisés situés aux arrières-lignes.

Les nouvelles règles de traitement sont d'excision réflechie et totale, avec l'interdiction de sutures primaires, d'emploi généreux des sulfamides et de ses dérivés et succadénés, avec attelles plâtrees fermées.

L'auteur étudie la méthode du professor Yudin de suturer la peau au fascia profond de la cuisse afin d'empêcher la fermeture prématurée de la plaie des tissus mous dans les fractures

compliquées du fémur. L'arthrotomie précoce dans les traumatismes du genou, méthode proposée par le professeur Yudin, est recommandée, mais n'oublions pas que ce traitement n'arrête pas l'ostéite.

SUMARIO

El servicio de salud del Ejercito-Rojo está basado en el principio fundamental que la asistencia médica debe ser utilizada tan cerca como posible al soldado en la linea frente de batalla y tratamiento de primeros auxilios en estaciones de evacuación y distribución de casos a hospitales de especialidades en locales resguardados.

Los métodos más recientes en el tratamiento de heridas consiste en cuidadosa excisión, prohibiendo suturas primarias y haciendo libre aplicación de las preparaciones sulfas (sulfanamidas) y en general el uso del molde de yeso (plaster-of-Paris) cerrado.

El método del Profesor Yudin de hacer la sutura de la piel á la fascia profunda (fascia lata) para evitar la union prematura de la herida dentro del molde de plaster-of-Paris, en casos complicados, de fractura del fémur, se presenta.

La artrotomía temprana de Yudin en casos de trauma de la rodilla es muy recomendada aún cuando este tratamiento no impide el osteitis o la "heridatisis" de Pirogov.

Las ventajas en la división del proceso de cura de heridas en períodos o fases según Girolav y Rufanov son indicadas.

Выводы

Основной принцип медицинской покак можно ближе к сражающимся вомощи в красной армии, это принести ее фронтовой линии. Лечение начинается сейас-же в станционах евакуации и сортировки. Новый метод лечения ран состоит из осторожного иссечения раны, без зашива, пользованием сульфа препаратами и гипсовой повязки.

Автор так-же описывает методу Юдина в которой кожа пришивается к глубокой фасции для избежения преждевременного зашивания раны под гипсовой повязкой. Раняя артротомия по Юдину рекомендуется, хотя она не всегда гарантирует против развития остеита или "фтизиса"—"раны" Пирогова.

Автор также подчеркивает преимущества деления заживания ран на фазы по схеме Гирголава и Руфанова.

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Paint-Splash Cervix in Leukemia

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MODERN medicine has become in great part a maze of "laboratory" investigations demanding of our present day doctors an exhaustive background of preliminary instruction in the basic sciences and refinements of "technic" in order to grasp intelligently the whys and wherefores of icteric index, fragility tests, Rh factor and other added niceties to the field of diagnosis and therapeutics. And yet, there is still much to be obtained from the use of our five primary senses—sight, smell, touch, hearing and taste. Many systemic diseases can be detected by their manifestations evident on the skin, in the mouth, in the vagina and within the confines of the rectum.

The purpose of this short paper is to call attention to a finding in the cervix that may lead the general practitioner and those engaged in the fields of obstetrics and gynecology to suspect the presence of a possible leukemia.

Nowhere in the literature was there any suggestion encountered that hinted at such a possibility. This brief contribution is offered in the hope that others may be on the alert for further instances of this manifestation and thus a definite "cervical sign" be established that will be of assistance in the more frequent recognition of leukemia. It is not a routine matter for general practitioners and gynecologists or obstetricians to order complete blood counts. The observation of a "paint-splash" appearance in a cervix might point the way to such a procedure.

In December of 1942, while reading an article by Felsen[1] entitled: "The Sigmoidoscopic Diagnosis of Systemic Diseases," his use of the term "paint-splash" was most arresting. More striking, however, was the association of leukemia with the appearance of the mucus membrane of the rectum to which he had applied that descriptive term. Felsen's description was as follows: "Focal areas of intramural, myeloblastic infiltration usually progressed to necrosis and ulceration with superimposed secondary infection. The ulcers were usually discrete, irregular in shape and ragged in appearance.

"The intervening mucosa was the seat of punctate and confluent or 'paint-splash' hemorrhages. The latter term indicates the resemblance to red paint splashed against a smooth, light-colored background by the flick of a brush."

In sigmoidoscopic examination Felsen found it valuable to employ green and red filters and a magnifying telescope. He stated that in the rectum rather suggestive signs were usually present in the acute forms of both the myeloblastic and lymphoblastic types and even in some instances of aleukemic leukemia.

The acute lymphoblastic leukemias, seen chiefly in younger age groups, exhibited marked diffuse hypertrophy and hyperplasia of the lymphoid apparatus of the intestinal wall—with or without hemorrhages into the mucosa.

Rectal bleeding is sometimes the first symptom noted by a patient otherwise completely unaware of an existing leukemia. Hence, the sigmoidoscope may give the earliest clue to the diagnosis.

Occasionally, intestinal lesions may appear before the typical hematologic or sternal puncture findings. In these cases, however, there generally occurs an antemortem rise in immature cell forms of the myeloblastic or lymphoblastic series to approximate the classical hematologic picture of leukemia.

Felsen sums up as follows: "If present, the triad of myeloid metaplasia of the lymphoid tissue, discrete ulceration and 'paint-splash' hemorrhages are of diagnostic significance. These are noted particularly in the fulminating type which runs a rapid course."

Several years ago, a girl of 15 was brought to the writer's office for treatment of a pelvic discharge. Her hymen was sufficiently patent to permit of the safe introduction of a virginal speculum.

Examination of the vagina was essentially negative. A discharge was present but was evidently endocervical in origin. Grossly, it bore no resemblance to that associated with gonorrhoea or with trichomonas vaginalis involvement. The cervix, however, presented an appearance not previously encountered in the examiner's experience. The anterior aspect was not like that of the usual erosion. It seemed as though a drop of paint had been splashed against it—*red paint.*

Tertiary syphilis at times manifests itself in the cervix, covering it with fairly large, dark red splotches in such a manner as to leave only a few scattered small islands of normally pale mucosa separating the areas of discoloration. This, definitely, was not the picture that met the eye in the young girl's case—nor did she have syphilis.

Beginning from the margins of the *external os as a central point, there was* a reddish discoloration that was practically continuous. At various sites in this confluent area there was a gradual change either to a pink or bluish red, with here and there a string-like effect seeming to connect the otherwise apparently discrete areas of color variation from the reddish background. The entire, abnormally colored portion of the cervix, extending over about two-thirds of the anterior aspect, faded gradually into the normally pale pinkish-red mucosa of the healthy cervix. Yet, there was a noticeably distinct line of demarcation. At the time, a notation was made on her case history as follows: "Cervix shows a paint-splash appearance."

Local applications of 10 per cent solution of silver nitrate to the inner aspect of the endocervical canal and over the "colored" area of the anterior aspect of the cervix failed to do more than stop the discharge. The involved mucous membrane retained its abnormally colored appearance.

Not long afterwards, severe nasal hemorrhages occurred. Hospitalization was deemed necessary. A routine blood count revealed an acute form of lymphatic leukemia. Despite repeated transfusions of whole blood, the young girl expired shortly thereafter.

Upon encountering the use by Felsen of the expression "paint-splash," and noting his correlation of the term with leukemia, plus his consideration of such a picture in the rectal mucous membrane as most significant, it recalled to me the peculiar finding in the cervix of the young girl whose history has been given above.

There were, however, two essential differences in the pictures to which the same term had been applied. That in the young girl was continuous, the "[illegible] int-splash" appearance de[illegible] fr[illegible] ying *modifications of* [illegible] that characterized [illegible] colored portion of th[illegible] the cervix. Nor were there any discrete ulcers as described by Felsen in the mucosa of the rectum.

Consideration of these differences led to the following speculations. A variation in lymphatic or vascular arborization might have accounted for the practically confluent picture in the girl's cervix as compared with the punctate and confluent hemorrhages noted in the rectal mucosa. The lack of discrete ulcers in the cervix might be explained by the greater likelihood of infection in rectal mucosa. Or, perhaps, the leukemic involvement of the cervix had not progressed to as advanced a stage as that observed by Felsen during sigmoidoscopy. Then, too, viewing the picture with the aid of red and green filters through a magnifying telescope might ave some varying effect upon the visual iterpretation.

The cervix receives its blood supply through one or two sets of arteries that branch off from the uterine arteries on each side. After entering the cervical body, these blood vessels ramify extensively. They follow the fan-shaped arrangement of the muscle bundles and are widely separated by the fascicles of the cervical connective tissue. The veins are fewer in number than the arteries. There are no large venous sinuses.

On each side of the uterus is a large lymph vessel. These provide free anastomosis for the flow of lymph between the corpus and the cervix. The lymph vessels of the latter, in turn, form an intimate network with those of the base of the bladder, the perimetrium and the parametrium.

As stated previously, a thorough search of the literature failed to reveal any reference to the use of the term "paint-splash" in connection with leukemia other than that by Felsen. Some interesting references to the cervix and the body of the uterus in leukemia, although without calling attention to the type of picture in the cervix herein described, were found.

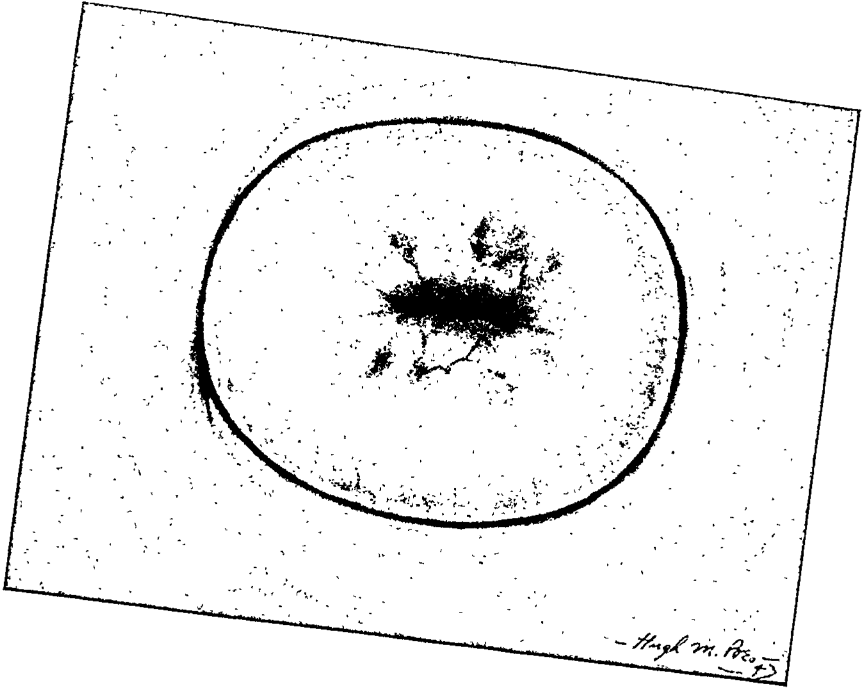
Mac Callum[2] refers to a case in which "there was a lymphoid nodule in the cervix uteri extending to the vagina with ulceration and bleeding. It was at first thought to be a carcinoma; but the autopsy revealed areas of infiltration of lymphoid cells in many of the organs in association with the leukemic condition of the blood."

Of interest in this connection is the extensive tumor-like infiltrations of tissues that may take place in leukemia. Naegeli[3] and others refuse to recognize this tumor formation as anything distinct from lymphoid leukemia. Sternberg,[4] on the other hand, feels that a localized tumor mass developed in some tissue may be the beginning manifestation of the disease.

Such a mass, according to Sternberg, is composed of lymphoid cells that seem to escape into the blood stream, thus giving rise to leukemic alterations of the blood. Mac Callum concurs with this theory. Kaufman[5] calls these "leukemic diffuse or circumscribed lymphomas." He points out that, occasionally, an entire organ may be diffusely infiltrated. Thus, the whole of the uterus may be involved.

Aggressive, tumor-like lymphomas appear more frequently in lymphatic leukemia, especially in the acute form. Numerous nodules encountered in the kidneys, spleen, liver and other internal organs may resemble tumor metastases.

Kirschbaum and Preuss[6] report finding diffuse lymphocytic infiltration at the base of an extensive erosion of the cervix in a case of chronic myelogenous leukemia. They note, in addition, that in a study of 123 fatal cases in a series of 14,400 necropsies for leukemia, 7 instances of ulcerative proctitis and colitis



— Hugh M. Beo —
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were associated with the acute stem cell type.

Kermauner[7] submitted the unusual case history of a girl of 15 who died on the twelfth day of her first menstrual period. The cause of death was myeloid leukemia. At necropsy an involuting corpus luteum was observed in one ovary. A description of the endometrium was not given.

Something concerning pregnancy, though not directly related to the purpose of this paper, may not be amiss. Cases of leukemia in parturient women are rare since a lack of fertility and leukemia seem to go hand in hand.

This is fortunate. Should a pregnancy occur during the course of a leukemia, the latter is apparently aggravated. Moreover, the prognosis for the mother is quite grave. According to Kracke,[8] death usually occurs shortly after the delivery.

Although therapeutic abortion is advised by some, if the diagnosis of leukemia has been established early in gestation, it is doubtful whether it has any beneficial effect. Hence, women with leukemia should avoid becoming pregnant.

Since this disease is characterized by a pronounced hemorrhagic diathesis, bleeding may appear quite early from the eyes, the mucous membranes, skin, heart muscle, brain, the lung and its meninges and from the cervix. In the chronic form of leukemia, hemorrhage is far more unusual and is seen only in the advanced stage.

SUMMARY

A peculiar “paint-splash” appearance is described in the cervix of a girl who died from leukemia. A similar, though not identical, picture noted by a proctologist is referred to. The possibility of establishing such an appearance in the cervix as a significant sign in leukemia is presented. An illustrat [illegible] oil to visualize the “paint-splash” sign in the cervix is provided in color.

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RÉSUMÉ

Une apparence de badigeonnage observée sur le col de la matrice d'une jeune fille qui mourut de leucémie est décrite. Une image très ressemblante, observée par un proctologiste, est rappelée. La possibilité d'établir cette apparence du col comme signe important de la leucémie est presentée. Une image colorée de ce cervix accompagne la communication de l'auteur.

SUMARIO

Una apariencia singular del cuello-uterino descrita por el autor como “paint-splash”—“brochazo de pintura”—en una jovencita que murió de leukemia. Un caso semejante, pero no idéntico, es citado por un proctologista, al cual se hace referencia.

La posibilidad de establecer que dicha apariencia en el cuello-uterino sea signo significante en leukemia, la ofrece el autor, con una ilustración en pintura al oleo para visualizar la “paint-splash” o “brochazo de pintura” del cuello.

Выводы

Описывается случай появления особого “красочного пятна” на шейке матки у девушки, которая умерла [illegible] [illegible]. Так-же 'сообщается о по[illegible] одинаковом явлении, от [illegible]

кого пятна на шейке матки является важным диагностическим признаком лейкомии. В работе приводится иллюстрация "красочного пятна" шейки матки.

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(Continued on page 115)

Shock

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PROBABLY no term in the medical nomenclature of the present day has received such meticulous attention, elaborate explanation, and lack of agreement with regard to its clinical application as the condition which is referred to as *shock*.

We, as surgeons, have long since developed a very high regard for the type of shock which accompanies or follows operative procedures. And those of us who have been associated with an emergency service are far too often aware of the irreversibility of traumatic shock which we see in the accident ward. And so, instead of attempting to analyze the various etiologic factors, I would like to discuss the subject briefly.

The reports of the casualties and their treatment in this war, as compared with those of the last war, seem very significant and reflect great credit on the experimental and clinical investigation of shock.

CLINICAL FEATURES

The clinical features of shock are summed up by Freeman as follows: "The patient in shock has the appearance of being seriously ill. The significant features are centered about the peripheral circulation. The skin is cold and moist, of an ashen grey or cyanotic hue. The pulse is feeble and rapid. There is usually a lowered blood pressure although in the early stages the pressure may not be significantly reduced. The patient presents the picture of weakness bordering on exhaustion. This condition is not sudden in onset and takes time for its development. During the downward course, there is progressive enfeeblement and gradual suppression of all bodily function."

While there is some discussion with regard to the existence of acute shock, the above clinical picture can be seen after severe head injuries, sudden loss of blood, emotional crises, pain, extensive burns and rough handling of injured patients, especially those with fractures. However, the acute reaction may be the manifestation of an already impending condition of shock.

TRAUMATIC SHOCK

In view of the fact that shock of traumatic origin always assumes an important rôle in the treatment of casualties, the present discussion will center about this type of shock.

According to Blalock and Moon, clinical traumatic shock is a circulatory deficiency, neither cardiac nor vasomotor in origin. It is characterized by a decrease in
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An initial decrease in blood volume is followed by an impaired cardiac output, constriction of the arterioles, diminished blood pressure, capillary stasis and cell anoxia. In addition a toxic substance is formed causing dilatation and increased permeability of the capillaries, which allows a loss of plasma and plasma proteins. This condition may progress beyond recovery, and circulatory failure and death ensue.

Regardless of the primary and contributory causes of shock, we are dealing with a condition which involves the circulation of the blood and its physiologic alterations, and the successful treatment depends upon the early recognition and expectant therapy rather than allowing the condition to reach the terminal stages.

Fine, of Boston, at the recent meeting of the *American Surgical Association* reported experiments with hemorrhagic, burn and tourniquet shock. He used radioactive protein plasma.

His evidence contradicts the theory that increased capillary permeability is present—escape of plasma into the injured area is confirmed.

While plasma loss is the significant initiating cause of shock, the irreversibility of the shock state is not due to a progressive decline in plasma volume, but rather to a progressive deterioration of the peripheral circulatory mechanism, characterized by decreased volume and velocity flow through capillaries.

TREATMENT

Just as in malignant lesions we have learned to recognize the advanced clinical symptoms in treating shock, we know that successful treatment depends upon anticipating them before the condition has advanced too far. And similar to those of malignant lesions, many of the classical tests for shock are both late and unreliable. Based upon this assumption, traumatic shock is being treated on the battle-field and aboard ship, in the fox holes and in dugouts without attempting to move the patients.

Morphine is being given for pain, lacerations and fractures of the extremities are being immobilized, and blood, plasma and albumin are being carried to the patient instead of transporting the patient to the treatment. The treatment of shock in this present war is based upon our knowledge that shock develops in so large a number of casualties that anticipatory treatment will be followed by a lowered mortality and a much briefer convalescent period. Shock is more likely to occur in debilitated persons, those who have been living under strain with poor food, inadequate fluid intake and an already abnormal circulation when the trauma is sustained.

It is the consensus of opinion that intravenous fluid replacement is the chief element in the therapy of shock. Wounds should be treated, hemorrhage checked, pain allayed and bodily warmth protected or artificially increased. But shock should be anticipated. Various fluids have been used with variable results. Certain factors are responsible. None of the fluids have been ideal or indicated in all cases. Probably of all the fluids or solutions in use at the present time, human plasma offers the more universal application. A few general rules can be made with regard to the selection of a fluid medium. It stands to reason that casualties who have lost whole blood require whole blood, those who have lost plasma require plasma and those who are dehydrated require normal saline or glucose.

We have learned that patients with extensive burns require large amounts of plasma, and that those having traumatic amputation of a limb associated with excessive loss of blood need whole blood, but that plasma will be of value in preventing the terminal stages of shock, and transportation can be carried out with greater safety.

Among the solutions, blood and blood plasma have been the most successful, but human albumin has also proved of value and has the advantage of remaining stable in concentrated solution and can be carried in small containers ready for use in the field and aboard ship. Gum acacia has been used in the treatment of shock, but its use is not to be encouraged. Pectin has been tried and in some clinics has been used to advantage. However, while blood substitutes have not proved as successful as blood and blood derivatives, further investigation may throw new light on the subject.

Experimental use of bovine bone gelatin as a blood substitute by Lockwood showed that gelatin having the physico-chemical properties of the material used could be safely subjected to clinical investigation in man.

The United States Navy, through its Bureau of Medicine and Surgery, publishes a news letter which carries to all members of the Medical Corps the latest information on various subjects in abstract form. In a recent letter there was a discussion on shock which is quite practical and brief:

Shock—It is too late for prevention when shock can be recognized. Shock treatment should be started early for seriously wounded patients, even in the absence of "prodromal" signs. It is wiser to "block shock" if the injury is severe and if there is evidence of much blood-soaked clothing, bleeding of long duration, burns of large surface, extensive crushed areas, severe dehydration, history of blast injury, exposure to cold, or immersion. Other casualties should be examined at frequent intervals, as time permits, in order to watch for the "prodromal" signs. As the sorting process continues, treatment should be started as indicated and before "typical clinical shock" has occurred. Bear in mind though that intravenous injection or transfusion may dislodge a clot unless hemostasis is known to be complete. This risk usually must be accepted in cases of severe shock.

Every wounded man is in shock to a greater or lesser degree. Treatment should anticipate the "prodromal" signs which are: (1) falling blood pressure; (2) rising pulse rate; (3) abnormal appearance; (4) thirst, restlessness, nausea and vomiting. When "prodromal" signs occur, the blood pressure has already fallen and the patient is in shock to some degree.

When hemorrhage is present, use the quickest method as indicated, such as tying a vessel, pressure or pack, to obtain the most adequate hemostasis consistent with speed.

The tourniquet is only to be used when direct pressure fails to check blood loss Apply as low as possible. If a limb cannot be saved, do not remove tourniquet until blood or substitute is running into a vein. Otherwise loosen tourniquet, to save the extremity, at intervals not greater than one hour.

Immediate, careful splinting of broken bones is essential as a shock preventive."

Posture. Head down for low blood pressure; exceptions: chest injuries, pulmonary edema and head injuries.

Fluids. Water, hot coffee and tea by mouth, as tolerated, except abdominal injuries and preoperative patients.

If the desired effect on blood pressure is not obtained in fifteen to thirty minutes the dose of blood or blood substitutes should be repeated.

Intravenous salt and glucose are dangerous if used in the presence of head injuries, for if the intracranial pressure is elevated above normal or is rising, it may be serio [illegible] increased b [illegible] venous salt [illegible] wounds salt and glucose solutions are, however, given in large quantities, in the correction of dehydration.

Burns. Plasma best for shock. Two units of plasma in first twenty-four hours *for each 10 per cent of burned body surface.* Repeat dose during second twenty-four hours in average case.

Dehydration Collapse. Cool patient (don't apply cold), give water and salt by mouth. One teaspoonful (3 gm.) salt to glass of water (200 cc.). Then 1 gm. to every 500 cc. water per hour until thirst and temperature approach normal. Use veins if uncoöperative or collapsed.

Heat. Conserve body heat rather than add heat by hot water bottles. Too much heat may cause sweating and fluid loss.

Exposure to Cold and Immersion. Rapid warming by external heat may precipitate shock or death. Place patient in blankets to conserve heat. (Do not warm extremities of a person suffering from immersion foot.) Give hot fluids (tea, coffee) with added sugar by mouth and then later 1000 cc. normal saline with 5 per cent glucose by vein.

A transfusion of blood, plasma or albumin should be under way before external heat is applied.

Analgesia. Morphine (*dose not to exceed one-half grain*). *Severe head injuries should not receive morphine.*

Anesthetics. Avoid, until patient improves. Use local if possible—for major procedures ether is preferable to spinal or intravenous barbiturates.

Rapid, early treatment of shock means saved lives and also economy of labor and materials. By treating the patient as if approaching shock, he is given the benefit of any doubt. The longer shock exists, the more severe it becomes and the more difficult it is to relieve.

SUMMARY

The early recognition and treatment of shock associated with war wounds, either with or without the loss of fluids, has lowered mortality and shortened the period of convalescence.

Clinical shock is characterized by changes of the peripheral circulation, the skin being cold, moist and ashen grey or of a cyanotic hue, and the pulse feeble and rapid. The condition progresses slowly downward and terminates in a gradual suppression of all bodily functions.

Shock associated with hemorrhage should first be treated by hemostasis; in shock associated with pain, morphine and the barbiturates have been of value. Immobilization of fractures, the application of heat and the placing of the patient in absolute quiet are fundamentally important in the treatment of shock. In specific treatment of shock, whole blood, plasma and albumin and blood substitutes are indicated.

The recognition of the reversibility of shock has led to the early administration of blood and blood substitutes on the battle-field and aboard ship prior to the transportation of a patient.

RÉSUMÉ

Il est nécessaire de reconnaître et de traiter le choc accompagnant les plaies de guerres, qu'il y ait perte ou non de fluides. Ce diagnostic et ce traitement précoces ont diminué la mortalité et abrégé la convalescence.

Le choc clinique est charactérisé par des changements dans la circulation périphérique, la peau devient froide, humide et de couleur cendrée ou cyanosée, le pouls est faible et rapide: L'état s'aggrave progressivement et se termine par la suppression graduelle de toutes les fonctions de l'organisme.

Le choc accompagné d'hémorrhagie sera premièrement traité par l'hemostase, le choc accompagné de douleur, par la morphine et les barbiturates. L'immobilisation des fractures, l'application

de la chaleur et le repos absolu sont d'une importance fondamentale dans le traitement du choc. On aura recours à la transfusion de sang, de plasma et de succédanées du sang.

Sur le champ de bataille et sur les vaisseaux la transfusion précoce du sang et de substances apparentées au sang avant le transport du malade a donné d'excellents résultats.

SUMARIO

El temprano reconocimiento y tratamiento de heridas de guerra, con o sin pérdida de flúidos, ha disminuído la mortalidad y acortado el período de convalecencia.

El choque-clínico está caracterizado por cambios en la circulación periférica, la piel húmeda y fría y de color ceniciento o de cianosis y el pulso rápido y débil. Este estado se agrava lentamente y termina en supresión de todas las funciones.

El choque asociado con hemoragia debe ser primeramente tratado por la hemostasis y cuando el choque está asociado con dolor, la morfina y los barbiturates han sido eficaces. La inmobilización de fracturas, la aplicación de calor y asegurando toda quietud y reposo son de importancia fundamental en el tratamiento del choque. En el tratamiento específico del choque, la sangre total, plasma, albumen y sustitutos de sangre pueden ser utilizados.

El reconocimiento de la reversibilidad del choque, ha dado lugar a la administración temprana de sangre y de sustitutos de sangre en el campo de batalla y abordo de navios antes del transporte del paciente.

Выводы

Раннее распознавание и лечение шока при ранениях военного времени, как с потерей, так и без потери крови, снижает смертность и укорачивает период выздоровления.

Клинически шок характеризуется нарушением периферического кровообрещения; кожа становится холодной, влажной, пепельно серой, или цианотичной; пульс слабый, учащенный. Состояние медленно ухудшается и кончается постепенным угнетением всех функций организма.

Шок с кровопотерей, в первую очередь, требует остановки кровотечения. При *болевом шоке ценны морфин и барбитураты*. Иммобилизация переломов, применение тепла и помещение больного в абсолютно спокойную обстановку, являются основным при лечении шока. Как специфическая терапия, при шоке показано применение крови, плазмы, альбумина и заменяющих кровь субстанций.

Распознавание шока и борьба с ним привели к раннему переливанию крови и заменяющих ее субстанций непосредственно на поле боя, на борту корабля, перед транспортировкой больного.

FOR DEFENSE
BUY
UNITED STATES SAVINGS BONDS AND STAMPS

THIS IS YOUR COUNTRY TO HAVE AND TO HOLD
KEEP HER FOREVER SAFE AND STRONG
BUY MORE AND MORE WAR BO[illegible]D [illegible]MPS

The Conservation of Man Power for War*

HAROLD D. CORBUSIER, COLONEL, MED. RES., U. S. ARMY (Inact.)
PLAINFIELD, NEW JERSEY

HUMAN energy and skill are capable of providing the requisite number of guns, planes and ships necessary to equip a gigantic fighting force; however, when it comes to providing the human element, in whose hands to place these tools of warfare, something more than technical skill is required. It is quite obvious that if we are to recruit an army of ten million men from the one hundred and thirty illion persons of the country, we will have before us a gigantic task. The men whom we select to handle skillfully produced armament must be more fit physically than those who have done the technical work of mechanical production; yes, the soldier must not only be trained in the handling of the mechanized instruments of warfare, but he must have the intelligence and physical stamina to adapt himself to the many other phases of military life.

In recruiting an army we have followed the precept that a good fighting man must meet certain physical and mental requirements of fitness which classify him as the "pick of the crop." This is the ideal, but, unfortunately, we must admit that parental carelessness and a disinterested public have prevented thousands of young people from developing into the ideal human.

All this being painfully obvious, the question arises, "What are we to do about it?" How are we to produce a physically fit fighting force?

In making requisition upon the man power of the country, we must place at the head of the list the immediate needs of the fighting forces, which, as indicated, require men having perfect physique and mental alertness. Whereas industry involved in war production must also be supplied, it is true that the skilled worker does not necessarily require the physical attributes of the soldier; in other words, industry can draw upon a large portion of our man power not suitable for the armed forces. Many workers are doing excellent technical jobs in spite of hernias, weak feet, artificial limbs and blindness, but these defects would render men unfit for military duty. Of course, we do not mean that all men not perfect shall be forced to relinquish military duty, or that industry should absorb *all* those with physical defects. Quite the contrary is true, as we learned twenty-five years ago. As a result of former experience, we wish to discuss methods by which the armed forces can utilize sub-standard recruits and also retrain many of the unfit and those who have been incapacitated by war.

During the First World War it was clearly demonstrated that men with certain defects could be utilized for "limited service." All the nations involved in the war carried out training programs designed to salvage the unfit to such an extent that they could be assigned to *some* sort of duty with the armed forces. These programs applied to both recruits undergoing training and to the sick and wounded convalescents. Of course, the aim was to rehabilitate a man as far as possible, rendering him fit for full duty, or failing that, to give him "limited service" in some category for which his previous training best fitted him. The best work of this sort was begun at Joinville, France, later at various places in England where "re-education companies" were organized with excellent results.

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*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

Our own efforts in the salvage of man power during the last war met with enough success to warrant continuation and intensification of the program during the present emergency. The military demands at present are for the training, equipping and transporting of an army which will be superior in fire power to the Axis armies. This program naturally demands the most effective use of all the nation's man power, both the physically fit and the unfit. It is with those men classified as "unfit" that this discussion deals. We will not indulge in theory, but confine our remarks to facts which have developed from actual experience in the original program of military rehabilitation.

In discussing this salvage program we will place the subjects in the following three categories:

1. Rehabilitation of the *selectee* who is known to have possible remediable defects *at the time of his induction.*
2. Retraining of the *recruit*, the man who was accepted as physically fit, but who failed to live up to the requirements of military life.
3. Retraining of the *convalescent*, the soldier who has been sick or wounded, hence requires a planned system of rehabilitation, both physical and mental.

REHABILITATION OF THE SELECTEE WITH REMEDIAL DEFECTS

Until the beginning of the First World War, the Army accepted only men who were physically fit in every respect, but on passage of the Draft Act it became necessary to accept men who could not live up to peace time requirements. The new law provided for the induction of both the physically fit and those who were capable of performing limited service only. The records show that, of those examined, 31.2 per cent were rejected for full military duty on account of one or more physical or mental defects. However, a portion of these, 8.9 per cent, were admitted on a *limited* basis. At first no stress was laid upon the fact that a considerable portion of the "limited service" group might be rehabilitated to such an extent that they could be made fit for *full* duty. There was no criticism on this score because nothing of the sort had ever been attempted. However, the idea of rehabilitation was not seriously considered until later, when G. O. 45, May 9, 1918, was published, as a result of experiments which had been carried on at Camp Greenleaf, Georgia. This order created "Development Battalions," which were "to relieve divisions and other organizations of all unfit soldiers as soon as encountered and the reclamation of such men, so far as possible, in an organization constructed for that special purpose, thereby leaving the division free to function as a machine, with perfect members." The success of that program can well constitute a guide for action in the present war.

In considering a program for the correction of physical defects it naturally is uppermost in our minds that such an effort is one for medicine to handle. This is, of course, true, but we must not lose sight of the fact that without proper management medicine will not [illegible] tirely effective i[illegible] hing [illegible] sired results. [illegible] one for expe administrative supervision and special training. We must also take into consideration the types of cases which will be encountered and can be corrected to a greater or lesser degree. The cases for correction should be men on whom no great chances have to be taken to obtain successful results—those who, according to expert medical opinion, are amenable to treatment. This will include the considerable number of major cases which in civil life the physician always put in the "must" class, such as hernias and chronic appendicitis. However, we have to do with a very large class, in fact, the majority, who are below par on account of some defect which is ordinarily not considered of much consequence by either the family of the youth or the general practitioner. Such conditions as weak feet, hammer toes, poor posture, at chest, underdeveloped musculature, awkward gait, underweight, overweight, dental defects, etc. In civil life most of these defects are disregarded to a very great extent because the general public has neglected to realize what these things really mean, so we now have on our hands, this enormous section of the countries' man power composed of military "misfits." Their rehabilitation is essential, both for their personal benefit and that of the country.

Some attempt at rehabilitating men in this selectee category, has been attempted to a certain degree by the civilian physician, in the pre-induction period. However, we are convinced that this method is too cumbersome from an administrative standpoint. Moreover, as has been indicated, the problem is not a purely medical one, but requires certain training which can best be carried out under military supervision.

We have been talking physical fitness for years, but no concerted effort has been made to bring it about among our young people. Great stress is laid upon the development of "the team"—the fellows who will represent their schools in competition with others. These young people are a mere handful of the total number of students, but they "get the works"; the rest are neglected to a great extent. The goal in attaining physical fitness should be that state of perfection which would enable a young man to be inducted into the military service with no more preparation than a wash behind the ears.

The public's lack of interest is evidenced in many ways; the young man with weak feet, for instance, has been able to carry on pretty well in these days of highly developed transportation facilities, so no one worried about his partial disability until it became serious. Many weak foot cases have been able to get along pretty well, even on hikes, so "why worry," they say. However, put these same men into military training and they soon discover that the "hay foot, straw foot," under the drill sergeant is quite different from that of a leisurely hunting trip, where one can pick his way and sit down on a log whenever his weak feet become tired. Again, how many cases of poor posture, scoliosis, underweight, shuffling gait, deformed toes, bunions, hammer toes, etc., are now undergoing treatment in civil life? To quote from the records of the last war, "the most important of all defects found in the population of military age, were foot defects." The improvement in such cases is attained, not by just one or two visits to a physician, but by men trained in such work and equipped for it. This includes means for remediable exercises, posture training, etc. However, the most efficient, and less expensive method for rehabilitating such cases is by enrolling them in the Army and assigning them to organizations such as "Development Battalions." If this system were adopted for the "remediable" group, it would mean the induction of the "selectee" and his immediate, tentative classification in "A," "B," "C," or "D" class. "A" class (tentative) to include that class of borderline cases on which it is difficult to give a positive opinion at the original examination. Examiners are often confronted with this sort of problem. The result is that these candidates are either accepted or rejected, depending upon whether or not the examiner wishes to "take a chance." The tentative "A" class would give the examiner a "break"; we might say, in other words, a place to put his "uncertainties" and test them out. Class "A" (tentative) men would take part in the training program of the soldier, with modifications. Class "B," "C" and "D" should be the groups with *evident* defects, which might be corrected to a greater or lesser extent. If corrected, they would be promoted to a higher grade; if correction were not possible they would remain in their original grade, "rated" as to occupational ability and assigned to "limited service." The tentative "D" class, constituting the greatest problem, would include a few who would be amenable to treatment, that is, to such an extent that they could be promoted to "C" class. Those not fit for promotion should be placed in a "furlough" or a "reserve" status and returned to industry and agriculture. Such men should be placed in a Man Power Pool, to be assigned where needed.

As an example of the working of the principles involved in Development Battalions, we might cite some of the methods and results experienced at Camp Greenleaf and Camp Meade during the last war.

This work was first undertaken in this country, at Camp Greenleaf, Georgia, as an experiment aimed at retaining in the Army those men who were found to have defects which prevented them from performing the *full* duty of soldiers. It was discovered that many of the defects were of a remediable nature and that it might be worth while to attempt rehabilitation of such cases, by applying methods used in civil life, to men under military control. Most of the cases experimented with at that time were of an orthopedic nature. As an instance of the results obtained in this experimental "Reconstruction Company," as it was first designated, one example might be cited. At the end of April 1918, the company numbered 208 men, most of whom had been under training not less than thirty days. Of these 15 per cent were placed in permanent "A" class and transferred to organizations for full duty: 5.7 per cent were retained in service and classified "B" and "C" and assigned to "limited service" in various camps and even for over-seas duty. The remaining 79.3 per cent in the Reconstruction Company were retained for further training. As better facilities were obtained, results were proportionately better. Percentages of improvement varied in different camps, according to the interpretation of the regulations and the thoroughness of different examiners and training officers.

It is not the intention of this paper to discuss all the details regarding the conduct of that rehabilitation program, but it might be of interest to cite the manner in which the idea was developed. The writer, while Director of the "Schoo of Orthopedics" at Camp Greenleaf, experimented at some length with the problem of salvaging men who would ordinarily have been discharged as unfit, after they had been in military training for various periods. The evident success of this attempt, as observed by the Personnel Division of the Adjutant Ge
Office, resulted in
45, May 9, 19
This order in
the first "Ex

Battalion" at Camp Meade, Maryland.

In organizing these Battalions, not only cases of an orthopedic nature were included, but many other disabilities underwent treatment. Each class was segregated into appropriate companies in order to facilitate treatment and training. As the work progressed at that camp, officers were ordered there for instruction, in order that the method could be instituted in all other large cantonments. Additional material was published in a Bulletin from the A. G. O. designated, "Instructions Concerning Operation of Development Battalions." This Bulletin explained more fully the method of "rating" referred to earlier in this paper, and also gave more detailed instructions regarding the selection of qualified officers for assignment to this duty. Many other phases of the work were also more fully explained in that Bulletin. The system as a whole worked out to great advantage to the Army.

Before proceeding to remarks on the conduct of Category 2, mentioned at the beginning of this paper, I wish to invite attention to another class of cases which were experimented with to a certain extent. These were the malingerers. At Camp Greenleaf a number of such cases were assigned to the "Reconstruction Company" where they could be studied and appropriate steps taken for handling them. The details of that work cannot be given here, but suffice it to say that the experiment resulted in several surprises when some of these men made rather rapid recoveries and actually made applications for full duty.

RECRUIT REHABILITATION

At first glance, it might seem that Category 2 is of no particular importance. However, the writer's experience during Development Battalion work convinced him that we have to deal with a number of men who have "gone under" from too intensive training, or sometimes from the nervous tension incident to the new tempo and environment of Army training. The line officer receives his recruits and naturally considers that they are able to "stand the gaff" of a strenuous training program. Most of them can. On the other hand, there are a certain number who find that they "can't take it," even though they may have passed a perfect physical examination at induction. Those men are not in need of hospitalization and may not even have been marked "quarters" after having reported at "sick call"; nevertheless they are potential casualties and in need of intelligent handling. These cases cannot be cared for to advantage in combat organizations undergoing active training, but should be assigned in a detached status, to a Development Battalion for graduated training. If left in their organization they will probably be marked "quarters" and allowed to sit around for a few days, without having had a true evaluation made of their condition. Such cases are in a similar status to the next category of which we shall speak. However, we place them under a separate heading for the purpose of emphasizing the fact that the "dog tired" recruit is not always given sympathetic consideration.

RETRAINING OF CONVALESCENTS

Referring to Category 3, we invite attention to the importance of gradual retraining of convalescents, men who have been discharged from hospital and are *apparently* fit for duty with their regular organizations. After reports on this phase of the subject had been made to the Surgeon General, the Adjutant General published in "Instructions Concerning Operation of Development Battalions," the following: "Par. 5. In each 'Development Battalion,' arrangements will be made for giving physical training to such convalescents as may be sent to the Battalion for hardening. Patients who are no longer in need of treatment, but who require hardening before being returned to full duty, may be sent to Development Battalions by commanding officers of Base Hospitals or other proper medical officers. They will be carried attached. At the time they are sent to the Development Battalion, these patients will be returned to a 'duty' status. When in the opinion of the commanding officer of the Development Battalion these men have received the necessary hardening, they will be returned to their organizations."

Pursuant to this enabling order, a large number of the influenza and pneumonia convalescents at Camp Meade were quartered in vacant barracks and underwent very gradual conditioning and retraining. This group of convalescents was assigned to special battalions, not to those organized for the selectee and "washed out" recruits.

It is important for the convalescent to begin occupational therapy and retraining as early as possible in the period of recovery, in order to improve his mental attitude and to shake off the idea of being ill. The initial steps in this work should be undertaken as early as possible, before discharge from the hospital. Of course this retraining should be arranged for surgical, medical and mental cases alike, but with methods appropriate to each class.

The details of convalescent retraining at Camp Meade cannot be taken up at this time, but we can report that the program was a marked success and resulted in the salvage of many men who might otherwise have become chronics and unfit for further service. I wish to emphasize the fact that there is no place in a convalescent retraining program for the pugilistic type of conditioning. This is undoubtedly quite appropriate to the training of Commandos, but will only be detrimental to the convalescent patient and even to the early stages in training of the physically fit recruit.

We cannot close without laying stress upon the importance of a long-range program for the improvement of the physical condition of our youth throughout the entire country. It seems that such a program should be instituted by national organizations already functioning to a greater or lesser degree. Not meaning to decry the importance of sports and athletic competitions, we must at the same time lay emphasis upon general physical development for all youth, not just for those being groomed to take part in athletic events. The popular idea of the acme of physical fitness is the production of athletes for competitive contests. This desire to train "winners" comes down through the ages and should not be abandoned, but why give all the attention to the select few? We need mass winners! A nation-wide program for physical fitness might well have set for it the example of the well organized Development Battalion.

CONCLUSIONS

In the recapitulation of this paper, we wish to emphasize certain points which it seems should enter into a definite program for the salvage of man power for the war effort, the opinions given having been arrived at as a result of original work in rehabilitation done during the last war. (a) Formation of Development Battalions in the military service to absorb cases of a nature which experience has shown can best be handled in organizations where physical training is the major requirement, coupled with medical, surgical and dent treatment: this meth [illegible] ied o to th [illegible] it [illegible] arm fitted into some essential activity. (b) To return to industry, men whose physical condition and general aptitude make them military misfits. (c) The meticulous retraining of convalescents discharged from hospitals, and those soldiers who have developed symptoms from overtraining, etc., but are not fit subjects for hospitalization. (d) Institute a long range program of physical fitness for the youth of the country by interesting the general public in the great importance of training young men "fit to fight."

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RÉSUMÉ

L'auteur présente un programme pour la conservation de la main-d'oeuvre. Ce programme embrasse les conditions suivantes: (a) La formation de bataillons de développement parmi les hommes en service afin d'absorber tous les cas que l'expérience a démontré qu'ils possèdent les capacités essentielles d'organisation. Ces hommes après examens médical chirurgical et dental, seront retenues jusqu'à temps qu'ils puissent être placés dans l'industrie. (b) Licensier tous ceux dont l'état physique ou l'aptitude générale sont impropres au service militaire. (c) L'entraînement méticuleux des convalescents relâchés et de ces soldats qui montrent des symptômes de surmenages, mais dont l'état général ne demande pas qu'ils soient internés dans un hôpital. (d) L'adoption d'un programme détaillé pour l'entraînement physique de la jeunesse du pays. Il faut que le public comprennent l'importance de préparer nos jeunes gens pour la lutte et pour la défense nationale.

SUMARIO

El autor presenta un programa para la conserva y el poder físico de tropas de guerra y consiste de los requisitos siguientes:

(a) La formación y desarrollo de Batallónes en el servicio militar que absorban los casos que la experiencia ha demostrado pueden ser manejados en las organizaciones de instrucción y ejercicio físico junto con el tratamiento médico-quirúrgico y dental, este plan practicado hasta el punto de conservar en las fuerzas armadas los individuos que pueden ser utilizados en actividades esenciales.

(b) Devolver a las industrias aquellos cuyas condiciones físicas y aptitud general no son de calidad militar.

(c) Escrupulosa instrucción de los convalecientes que han sido descargados de los hospitales, lo mismo que a los soldados que han desarrollado síntomas resultantes de los ejercicios e instrucción militar, pero que no necesitan hospitalización.

(d) La institución de un largo programa de condición física de la juventud, interesando al público en la importancia del desarrollo y cultivo de la juventud "capáz para el cambate."

Выводы

Представляется программа по сохранению здоровья мужчин годных к военной службе.

Она охватывает следующие пункты: а) формирование тренированных военных батальонов охватывает случаи такого порядка, которые, как показал опыт, лучше передавать в организации, в которых физическое упражнение является главным условием подготовки, соединяющейся с терапевтическим, хирургическим и зубоврачебным лечением; этот метод должен применяться с целью сохранения каждого человека для армии и возможности использования его в какой-либо определенной деятельности. б) Возвращение мужчин на производство, физическое здоровье которых делает их непригодными для военной службы. в) тщательная подготовка и переподготовка выздоравливающих, выписывающихся из госпиталей и т. д г) Подготовка обширной программы по физическому воспитанию молодежи страны с привлечением общественности к вопросам обучения молодежи под лозунгом "быть готовым к борьбе".

(Continued from page 102)

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DUES EXEMPTION FOR THOSE ENGAGED IN ACTIVE MILITARY SERVICE

At the meeting of the United States Chapter of the International College of Surgeons held in Chicago on March 30, 1941, it was unanimously agreed by the Executive Council that Associate Members, Members and Fellows of the International College of Surgeons are exempt from payment of dues during the period of active military service.

War Wounds of the Skull and the Brain

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IN 1906 Von Zoege Manteuffel[50] reported his sad experiences with conservative treatment of tangential gunshot wounds of the skull during the Russian-Japanese War. He was the first to urge the early operative treatment of these head injuries, contrary to general practice. My own experiences in the same war corroborate him completely. The small number of soldiers with serious head injuries who reached the German Hospital in Harbin after a long time died, all because of their desperate condition on arrival. Similar observations were made in the other Russian Hospitals of Harbin.

In the Bulgarian-Turkish War (1912-1913) I lost in Sofia 70 per cent of all tangential gunshot wounds of the head with injury of the brain due to severe infection, in spite of operative open treatment. Clairmont[13] suggested in 1913 the complete closure of gunshot wounds of the skull after careful excision and removal of bone fragments. At the beginning of World War I, during the siege of Przemysl, Barany[4] successfully closed tangential shot wounds of the skull in soldiers who were operated on only a few hours after being wounded. Cushing[17] two years later achieved the same good results with primary closure of these gunshot wounds of the skull.

During World War I the need of early operative treatment of all gunshot wounds of the head was accepted. Primary closure of the wound was considered desirable whenever external conditions permitted, but probably will not always be possible, even at the present time. While working in a German field hospital only six miles behind the Russian front during World War I, I never succeeded in performing a single primary closure of gunshot wounds of the skull because of late admission of the injured and gross soiling of the wounds.

In wartime, injuries of the skull are frequent. Percentages for recent wars are given below:

	Per cent
Franco-Prussian War	16.2
Russo-Japanese War	
Russian Army	21.0
Japanese Army	29.5
World War I	
German Army	14.4

The 14.4 per cent listed for World War I included 2.7 per cent of skull injuries with and without damage of the brain, 6.3 per cent injuries of the soft tissues and 5.4 per cent injuries of the face.

The decrease of the number of gunshot wounds of the skull in World War I is due to the use of the steel helmet. It has practically abolished all shrapnel injuries of the head. Against small caliber projectiles and small fragments of high explosives the steel helmet is effective only under favorable conditions (spent missiles, tangential hits). Lauwers[36] reported that the occurrence of head injuries in the French army decreased from 15 per cent to 3 per cent following introduction of the steel helmet.

It may be assumed that at least 25 per cent or more of all skull and brain injuries prove fatal on the battle-field. The treatment of the surviving 75 per cent will be discussed in this paper.

Gunshot wounds of the head may be divided into:

1. Grazing shot wounds
2. Tangential shot wounds
3. Segmental shot wounds
4. Diametric shot wounds
5. Shot wounds with retained missiles
6. Ricochet shot wounds

The grazing shot wounds, with injuries of the soft tissues only, nevertheless have to be watched carefully because experience has shown that the *tabula interna* of the cranium may be injured without any perceptible periosteal or bone injury. Formerly this kind of gunshot injury was denied by a number of authors, but it was repeatedly observed during World War I. I was probably the first to observe this type of injury during the Bulgarian-Turkish War.[18]

The case was a shell fragment wound with retained missile and semi-lateral paresis. After excision of the wound and removal of the missile, the periosteum and the bone appeared to be completely normal. Nevertheless the clinical findings made me trephine the skull. I found, exactly corresponding to the external lesion, a fracture of the tabula interna the size of a quarter, from which a bone fragment had penetrated into the brain and caused a subdural hematoma. The patient recovered completely.

In the reports of head injuries during World War I, many authors emphasized the possibility of brain injuries with apparently trivial scalp wounds (Cushing,[19] Jefferson,[32] Chabrol[11] and others). The Medical Department of the U. S. Army mentioned in its report: "Every scalp wound, no matter how trifling, is a potential penetrating wound of the skull."

The same experiences proved true in this war. McKissock and Brownscombe[38] report such apparently trivial head injuries which they have observed after air raids in London. Among fifty-three cases were many with scalp wounds, but none with fractures of the skull. Yet abnormally raised or lowered intracranial pressure was found in 19, blood was present in the cerebrospinal fluid in 16, 41 (77 per cent) showed abnormal physical signs referable to the central nervous system. O'Connell[42] saw four cases of brain abscess among 250 head injuries mostly caused in air raids. Two of the four arose because what were in reality penetrating wounds of the cerebrum had been regarded as trivial scalp wounds at first aid post or hospital.

The diagnosis of injuries inside the cranium without fracture and lacking positive symptoms may prove to be extremely difficult. Abbott, Due and Nosick[1] recently reported on ten cases of subdural hematoma and effusion due to blast. In this series, definite neurologic findings have been infrequent or minimal. Repeatedly diagnoses of psychoneurosis, war neurosis and traumatic neurosis had been made. In the experience of the authors careful psychiatric examination with the use of specialized psychologic testing has been more successful as an indication for pneumo-encephalography than the usual neurologic criteria. Also the
encephalogram may prove help
doubtful cases in localizing
hematomas, as shown in the
Rogers.[45]

I have quoted these references
to emphasize the importance of
careful examination of every
jury, even apparently trivial one
of continued medical observation.

Tangential shots of the skull

produce a furrow-like wound of the soft tissues and the bone (gutter type). The brain is always affected by the missile itself or by bone fragments driven into the brain. The extent of the brain injury varies but is mostly widespread. The bone fragments are usually small and numerous. They may lie in the surface or may be driven deep into the brain.

With *segmental and diametral gunshot wounds* the wound of exit is usually larger than the wound of entry.

Retained missiles are very seldom rifle projectiles (only those spent from very long distance). In most cases they are shell fragments. Shrapnel can almost entirely be excluded since introduction of the steel helmet.

A *ricochet shot* has so little force, that in most cases it is not sufficient to penetrate the helmet and enter the soft tissues. It results in a more or less serious contusion. The missile gets stuck in the helmet or drops to the ground. Nevertheless the ricochet shot may have sufficient force to cause an injury of the tabula interna as described above with the grazing shots. It may also be strong enough to cause a concussion, an epidural or subdural hematoma.

According to the experiences of World War I, about 40 per cent to 50 per cent of the gunshot injuries of skull and brain were fatal. About 30 per cent succumbed early, partly due to the seriousness of the injury, partly as a consequence of primary infection. About 20 per cent died from delayed complications. Kennedy[35] even assumed that the average mortality rate of skull and brain injured in World War I was more than 60 per cent. At the start of his work in France, Cushing[19] reported a mortality rate of 54.4 per cent which he succeeded in cutting down to 28.8 per cent.

The Medical Department of the U. S. Army has reported head injury mortality rates as follows: (Percentages given are approximate.)

Wounds of the scalp, 5 per cent.

Cranial fracture without dural penetration, 10 per cent.

Cranial fractures with depression and dural penetration, but without extrusion of brain, 20 per cent.

Wounds (usually gutter type) with brain extruding and indriven fragments of bone, 30 per cent.

Wounds usually of penetrating type with indriven bone fragments plus metal, 40 per cent.

Wounds of type 4 and 5 opening cerebral ventricles, 50 per cent.

Craniofacial wounds in which the ethmoidal or petrosal sinuses are opened making primary closure impossible due to the risk of secondary infection, 60 per cent.

Perforating or traversing wounds, 70 per cent.

Extensive bursting fractures, 100 per cent.

The mortality rate in this War is expected to be much lower, partly as the result of the experiences in World War I, partly due to the use of sulfa drugs. Although no statistics have been established so far, the reports published are hopeful. David and Ferey[20] treated 389 skull and brain injuries in the neurosurgical center of the Second French Army in May-June 1940, 288 of them having been operated on. Of these 288 cases, 28 (10 per cent) died. Twenty of these 28 suffered from fungus cerebri. Of 83 cases of fungus cerebri, 24 per cent died. These mortality rates are strikingly low compared to those of World War I. Ackland's[2] reported mortality rate of 50 per cent in this War may be ascribed to the small number of cases (38). The bad results may also be blamed partly on unfavorable facilities of transportation.

Of the surviving patients with skull and brain injuries from World War I, very few have recovered completely. Most of them remained invalid and were endangered even after many years. For this reason every patient with skull or brain injuries has to be considered as permanently disabled for military service, in spite of favorable clinical findings and apparent well being of the injured. All of these cases require careful and regular observation for years.

Those injured with retained shell fragments require special carefulness because an injury of the brain may be easily overlooked. I have seen a number of patients in apparent good health for many months suddenly develop acute encephalitis or brain abscess and succumb in spite of operation.

Every gunshot wound of the skull has to be regarded as primarily infected. The germs are driven into the brain together with foreign bodies such as hairs and bone or shell fragments. By early operation with subsequent closure of the wound, developing infection may be prevented. But "early" is by no means "immediately." The experiences of World War I have shown that operations of the skull and the brain should only be performed by surgeons specializing in brain surgery and in a hospital specially equipped for this purpose. Furthermore, the patient should be allowed to stay under the care and supervision of the same surgeon for at least three weeks. The special equipment of these hospitals should consist of the very best x-ray machine (stereoscope, tomograph), suction apparatus and a strong electromagnet. The medical staff must not only be fully trained in surgical care but must also be expert in ophthalmoscopic, neurologic and psychiatric examination. Already in World War I Cushing[19] claimed and established specialized hospitals for brain injured. Since then this claim has been fully acknowledged and accomplished in the Spanish Civil War as well as in this war. Of course these hospitals cannot be established near the front line. They will very often have to be far behind it.

This is touching upon the problem of transportation of skull and brain injured. Already the experiences of World War I have proved that patients with skull and brain injuries will stand long transportation relatively well after first aid treatment and provisional dressing. This has been confirmed in the reports of the Medical Departments of all nations. Recently Mitchell[41] reported the same experiences from Libya. On the other hand, transportation of patients within the first days after brain operation has proved to be dangerous. Most of them died. Ducuing[22] and his collaborators in their reports from the Spanish Civil War bluntly state a mortality of 100 per cent under these circumstances.

In World War I every case that reached the hospital within the first twelve hours after the injury was regarded as suitable for operation (primary closure of the wound). But there also are reports of successful treatment with débridement and primary closure of a few cases having reached the hospital after twenty-four hours. In this War with local, peroral and intravenous treatment with sulfonamides at our disposal the pre-operative interval might even be prolonged.

The importance of early operation necessitates the routine of selection of all patients with skull injuries at the Casualties Clearing Station for quick transportation to the next neurosurgical center. In this war the transportation of these injured by airplane has proved most helpful (Toennis[47]). This method of transportation has increased the chance of survival of even the most serious cases. It must be emphasized, however, that open brain injuries do not well tolerate [illegible] [illegible]udes above 5000 feet (Co[illegible]man [illegible] care is i[illegible] wi[illegible] [illegible]re been treated with sulfonamides. Foster Kennedy[35] warns of air transport at high altitudes because of the danger of sudden death caused by lack of oxygen. Therefore it is imperative to have oxygen available for those patients with brain injuries even at altitudes where other injured can do without.

Treatment of gunshot wounds of skull and brain. The general rules of the first treatment of head injuries need not be mentioned. Every head injured has first to undergo a thorough x-ray examination. Shell and bone fragments have to be located. The scalp has to be shaved completely. Especially with wounds caused by shell fragments, the points of entry are frequently so small that they do not bleed and may easily be overlooked. The shaving may necessitate ethyl chloride inhalation particularly with restless patients. The anesthesia of choice with all head injuries is local anesthesia. In a recent paper by Miller[40] pentothal sodium given in glucose and saline solution by the continuous drip method is recommended as the best anesthetic agent. A single injection may be useful during the painful shaving of the scalp or introduction of novocaine under which the operation may be completed.

According to my own experiences the excision of the wound with curved prolongation of both ends in opposite directions, if necessary, has proved most satisfactory. A similar incision the shape of a reversed S has recently been recommended by Lockwood.[37] The technic established in 1918 by Cushing[19] is still used. He prefers the tripod incision whereas with French authors the osteoplastic flap is the method of choice (Garcin and Guillaume,[24] Cairns[9] and others). With small wounds Cushing[19] preferred the removal *en bloc* rather than piecemeal of the area of cranial penetration. For the removal of the disorganized brain he availed himself of the suction method with a rubber catheter, thereby cleansing the track of the pulped or devitalized tissue whose retention, as is the case with dead tissue anywhere, favors infection. Horrax[30] and Garcin and Guillaume[24] recommended electrocoagulation to stop bleeding and for the removal of the necrotic tissue later by suction. Metallic foreign bodies may be removed by an electromagnet, using a French wire nail to contact the missile, a method already recommended by Cushing.[19] Heller[28] in his report from the beginning of this war recommended the use of a giant electromagnet for the removal of projectiles.

The dura mater has to be carefully closed with fine silk sutures. A defect of the dura may be closed by transplantation of fascia lata. David and Ferey[20] emphasize the use of amnion membrane instead of fascia lata. Chao, Humphrey and Penfield[12] recently likewise recommended amnion, especially the inner membrane of the amnion, which can easily be prepared and conserved. This material prepared according to their prescriptions is called "Amnioplastin." "Amnioplastin remains a foreign body for a short time but is completely absorbed within a period of thirty days and prevents the formation of adhesions." Also Cloward,[14] who reported his experiences at the bombardment of Hawaii, recommended the complete closure of the dura with clean wounds, whereas Guleke[27] never closed the dura and Broster[8] considered the repair of the dura as unsafe. Personally I believe the closure of the dura, with or without transplantation, to be very important in clean cases in order to prevent adhesions and consecutive epilepsy. Anyway, closure should always be attempted. The galea has to be closed with interrupted fine silk sutures, the scalp wound likewise in two layers. Before closing, dusting of the wound with sulfonamides is highly recommended (Broster,[8] Garcin,[24] Horrax,[29] Kennedy,[35] Grant[26] and others).

With tangential wounds the injury of the brain is mostly extensive but superficial, with numerous frequently very small bone fragments. After excision of the scalp wound the whole track has to be exposed. The opening of the skull is widened on both sides in order to expose the edge of the dura all around to an extent of a quarter of an inch. The visible bone fragments are removed first, the deeper embedded ones have to be carefully palpated with the finger or the Cushing catheter before removal. The wound is then treated as described above.

Several surgeons recommend primary osteoplastic closure of the bone defect. I believe that this closure, even in infected wounds, should be performed only after recovery and after one year at the earliest.

If tangential wounds are infected or reach surgical care only after a couple of days, the procedure is similar. I used to apply a loose packing with vaseline gauze after excision of the soft tissue wound, widening of the bone defect, careful removal of all bone fragments and of the devitalized brain tissue. Before packing, the wound has to be dusted with sulfathiazole or sulfapyridine. The first packing should remain as long as possible in order to secure good granulations. The danger of open treatment of brain wounds is secondary brain abscess, which may be expected in about 20 per cent of all cases, according to the experiences of World War I. Formerly, it was fatal in most cases.

On the experiences of treatment of open brain wounds with sulfonamides, reports from this War have already been published. The results may be expected to have greatly improved. The local treatment with sulfonamides, however, seems to be only successful following surgical treatment. Miller[39] who reported his experiences in a neurosurgical center in the Western Desert Campaign (Middle East) mentioned that undoubtedly the early oral administration of sulfonamides saved many patients with bizarre brain injuries who otherwise could not have survived. But he adds that scalp wounds packed with sulfonamide powder became infected and healed very slowly. Jefferson[33] considered the sulfapyridine to be exceptionally useful in the cranio-facial injuries. David and Ferey[20] have applied sulfonamides as a routine in the postoperative treatment of all brain cases: 6.0 gm. every day the first two days; 4.0 gm. the next two days; and 2.0 gm. the last two days. The strikingly low mortality rate of 10 per cent in 288 operated cases mentioned above may be ascribed to this medication. Cloward[14] recommended generous use of sulfonamides, not only in the scalp and skull wounds but in the missile tract of the brain. So far as can be judged, peroral and intravenous treatment with sulfonamides should be administered as a routine pre- and postoperatively in all cases of brain injury.

Complications. Almost all skull and brain injuries are connected with unconsciousness of short duration, which sometimes extends into hours and even days. Long lasting unconsciousness will always make the prognosis more serious. Amnesia, typical for commotion, is never observed with gunshot wounds of the skull except with grazing or ricochet gunshots to which the brain reacts as to a strong blow.

One of the most important complications with fresh gunshot wounds of the brain is *intracranial pressure.* It is to be expected after every brain injury and brain operation. Intracranial pressure may be raised by hemorrhage, the entrance being obliterated by blood clots which block the discharge of blood. The most important cause of intracranial pressure, however, is the increase of liquor following the trauma emphasized by Payr,[43] who called it *"Meningitis serosa acuta traumatica."* He believes that the trauma in itself irritates the plexus choreoidei and liquor-forming organs and thus causes an acute tidal wave of the cerebrospinal fluid originating together with the traumatic edema of the brain. The physiologic regulations and the relieving trephining caused by the gunshot may be responsible for the fact that the raised intracranial pressure does not always show.

The clinical diagnosis of raised intracranial pressure is made by ophthalmoscopy and by spinal puncture. Spinal puncture particularly and measuring of intracranial pressure should be performed with all gunshot wounds of the brain. According to my experiences, it proves most helpful not only as a diagnostic but also as a therapeutic procedure. Clean brain injuries with intracranial pressure may be cured with spinal puncture repeated twice to three times a day.

Intracranial pressure may also be lowered by intravenous injection of hypertonic 50 per cent glucose solution and by injection of caffeine sodium benzoate. A very recent method highly recommended is intravenous injection of concentrated serum by adding of 40 cc. sterile water to the dried solids obtained from 200 cc. of human serum. Turner[48] has used this method in six cases of closed brain injuries and was able to prove the decrease of the pressure in the cerebrospinal fluid in five of the six cases. The clinical results, especially relief of severe headaches, were satisfactory. Regulation of fluid intake and elimination of fluid by the bowels should also be considered for the purpose of lowering the intracranial pressure. Payr[43] recommended the puncture of the corpus callosum in all cases of failure of spinal puncture and reported excellent results.

It need not be mentioned that every brain injured has to undergo a thorough neurologic and psychiatric examination. It is a striking fact that even most serious brain injuries very often will cause but slight symptoms, especially when the frontal part of the brain is concerned. Widespread paralysis immediately following injury will frequently be seen to decrease to a wide extent. On the other hand, new symptoms of paralysis may occur after some time and disappear again. Motor aphasia will frequently be observed. Also sensory aphasia will occur after gunshot injury of the brain. Disturbance of vision is frequent.

Another complication of brain injuries, especially after open treatment, is infectious encephalitis. Occasionally it may remain localized, but may also develop into a brain abscess. Even after apparent recovery encephalitis may flare up again and become fatal. Encephalitis is frequently connected with fungus cerebri, as the following case shows.

CASE REPORT

A private, aged 29, suffered a head injury by shell fragment on Mar. 9, 1916. He was operated on in a base hospital on Mar. 16. He was discharged as recovered May 30, but had to be readmitted after three days because of headache. On July 3 he was transferred to the military hospital of his home town. Because of continued headaches and temperature an incision in the old scar was made Aug. 7 without result. Three days later x-rays revealed a small foreign body in the brain. Temperature continued high until Aug. 25. The patient was out of bed on Sept. 7 and in apparent good health. A slightly draining small sinus is located near the previous entrance of the missile. Because of sudden intense headaches and vomiting with high temperature on Jan. 25, 1917, the patient was admitted to my hospital. The examination revealed several radiating scars and a small slightly draining wound in the right temporal region. Under the firm scar tissue a bone defect of about 1 in. diameter was palpable. The patient was dizzy, the pulse very slow (46) and irregular. The x-ray film revealed a small shell fragment located not more than three-quarters of an inch inside the brain. In local anesthesia the scar was excised, adhesions with the brain were severed, the bone defect was widened and a small brain abscess containing the shell fragment was opened. The symptoms of meningitis increased after the operation and the patient succumbed in coma on Jan. 31, 1917. The autopsy revealed an extensive meningitis of the convexity and the base of the brain. The conserved and dissected brain showed a scar reaching the ventricle, encephalitic changes of its surroundings and perforation into the ventricle, distorted in the direction of the scar. Both ventricles were filled with pus.

In this case, more than ten months had passed between the injury and the fatal end. A primary infectious encephalitis caused by a small shell fragment flared up repeatedly and finally developed into acute meningitis.

Fungus cerebri is a consequence of raised intracranial pressure and may occur soon after the injury. Fungus cerebri should not be operated on, since results recorded during World War I have been highly unsatisfactory. In the present war these experiences have been confirmed by David and Fercy,[20] who lost three cases of infected fungus cerebri succumbing to meningitis within a week after operation. Guleke[27] in this war reported a mortality rate of 44.5 per cent in 78 cases treated for fungus cerebri. On the other hand, excellent results with conservative treatment (posture, dehydration, spinal puncture, chemotherapy) have been reported by O'Connell.[42] Among 250 cases of air raid injuries, he observed and cured 11 cases of fungus cerebri. Miller[39] successfully treated with sulfonamides 4 out of 5 cases. Thus, conservative treatment with sulfonamide, and reduction of intracranial pressure as mentioned above has proved to be the method of choice with fungus cerebri.

The early brain abscess mostly develops with gunshot wounds of the brain not recognized or with those not primarily closed by operation. It particularly develops around foreign bodies (hair, bone or shell fragments). The abscess usually shows up within the first two weeks after injury and is always associated with fungus cerebri in all cases of major defect of the dura mater. In World War I most of the affected succumbed. The following observation seems to be significant.

CASE REPORT

A sergeant, aged 25, having been wounded on Aug. 14, 1916, in the battle of the Somme (France) was transferred Aug. 18 to the military hospital of Coburg (Germany). Three days later, a week after the injury, he was transferred to my hospital for operation. He suffered from a retained shell fragment shot wound in the right lower occipital region. The missile had been removed at the Collecting Station. He was dizzy, but had no temperature. The vision was distinctly impaired (diplopia). The left pupil was larger than the right one and reacted much more slowly. The lower part of the scar showed a sinus through which movable bone fragments could be palpated by probing. Incision of the scalp shows a lesion of the right occipital bone. After removal of the bone fragments a lesion of the dura could not be proved. As the condition of the patient got worse and unconsciousness developed, he was operated on once more a week later. The bone defect was widened to a 1 in. diameter. A very small opening of the dura which was discharging pus became visible. The dura and a superficial abscess of the brain were [illegible] Five days after the operation a [illegible] hemorrhage occurred, which was controlled by packing. Uncomplicated recovery followed. On Sept. 29, 1916, about six weeks after the injury and four weeks after operation on the brain abscess, the patient was discharged as completely recovered.

In this case the injury had been caused by a retained shell fragment causing a fracture of the right occipital bone with depression. The surgeon who first operated on the injured man removed the shell fragment, but overlooked the bone lesion. When I operated on him the first time, I found the bone lesion and removed the bone fragments, but in spite of existing brain symptoms I *could not* make up my mind to open the dura. Only after extensive widening of the bone defect the second operation revealed a small lesion of the dura apparently caused by a pointed bone fragment with subsequent superficial brain abscess. This case history demonstrates the importance of careful examination of injuries with superficially located retained missiles. These cases always involve the probability of a skull fracture and a lesion of the brain.

The danger with brain abscesses is the perforation into the ventricle, a complication which formerly was always fatal. Autopsy revealed perforation of the peripherally developed abscess into the ventricle.

Nowadays the prognosis for brain abscesses has considerably improved due to the treatment with sulfonamides. O'Connell[42] succeeded in healing four cases of brain abscess developing after air raid injuries by chemotherapy. Miller[39] observed only two casualties among six cases of brain abscess. Treatment with sulfonamides made operation possible in several cases. Broster[8] had the definite impression that sulfonamides by mouth or intravenously delayed the necessity of operation and tended to localization of infection within the brain and that these abscesses can be excised *in toto* with their capsules at a later date.

Primary septic meningitis is a rare complication of fresh gunshot injuries of the brain, because the meninges in the surroundings of the wound get sealed very soon. It used to be a most dangerous complication fatal in almost all cases after operation of early brain abscesses.

Early traumatic epilepsy occurs soon after the injury, usually within the first week. No explanation can be given for the cause. Also primary closure of the wound will not prevent development of early epilepsy. Spells of unconsciousness and vertigo may be symptoms of early epilepsy. Operative treatment of scar tissue has to be carefully removed and the bone defect closed by plastic procedure. If after excision of the scar tissue a defect of the brain is observed it has to be filled by free transplantation of fat tissue. Dura defects are repaired by transplantation of fascia lata or preferably by amnioplastin (Chao[12]). Bone defects are replaced by transplantation of a free bone flap covered with periosteum from the neighborhood of the defect. This plastic operation should not be performed too early. No symptoms of inflammatory brain irritation should have occurred within the last six months. But even when this precaution has been observed, a circumscribed brain abscess may develop around minimal bone or shell fragments. In this case a plastic operation has to be deferred. For this reason all cases of this kind should previously be submitted to a thorough x-ray examination, measuring of the intracranial pressure and careful examination of the cerebrospinal fluid.

An occasional late complication of gunshot injuries of the brain is *brain cyst*. It may arise from different causes. Isolated or multiple cyst following serous meningitis may have remained in the arachnoidal membrane. Absorbed hematomas or devitalized brain tissue replaced by serum may be responsible for the formation of a cyst. These cysts may grow and will cause the same symptoms as brain tumors. If these cysts arise in the frontal brain following an injury of a sinus, the liquid contents may partly or entirely be replaced by air (pneumatocele). Campbell, Howard and Weary[10] recently report a successful operation. The operation of these cysts following gunshot injuries is likewise subject to the danger of latent infection, especially if embedded bone or shell fragments are located in the cyst or its immediate surroundings.

Late brain abscesses. The danger of acute purulent inflammation, mostly fatal, continues to threaten the patient with brain injuries for months and years, even when the patient is in apparent health. Flaring up of latent infection causes late brain abscesses, subsequent perforation into the ventricle or diffuse meningitis. These late brain abscesses usually develop around small foreign bodies, grow extremely slowly, are of chronic type and diagnosed with difficulty. Sometimes they may be diagnosed by a good x-ray or by spinal puncture. The problem of decrease of formation of late brain abscesses by treatment of fresh injuries with sulfonamides will not be solved until years after this war.

Men injured by retained missiles are subject to the same dangers. If symptoms arise, the missile has to be removed. Otherwise chances of operation have to be balanced with chances of conservative treatment. Those injured by retained missiles should never be considered completely recovered and need continuous observation by trained specialists.

Jackson's epilepsy has likewise to be considered as a late complication of gunshot injuries of skull and brain. World War I contributed little to our knowledge of traumatic epilepsy. We only know that patients with broad scar formation after open treatment were more subject to epilepsy than those treated with primary closure. The interval between injury and the first convulsive seizure may extend over a period of years in cases of gunshot wounds. What causes irritation of the brain cortex and produces epilepsy has not been revealed by the experiences of World War I.

servation for a period of seven to twenty years.

		Per cent
From epilepsy, suffered	107	(34)
succumbed	14	(4)
Succumbed from causes connected with the head injury	3	
Fits with cases of dura injury		45
Fits with cases of uninjured dura		23

The removal of the missile did not seem to reduce the liability to epilepsy. Retarded healing of the wound proved favorable for the development of epilepsy. Denny-Brown[23] on the other hand found only 53 cases of traumatic epilepsy among 630 fully documented consecutive patients, this being only 8.4 per cent compared to the 34 per cent of Ascroft. I believe the rate of Ascroft to be too high, that of Denny-Brown to be too low. The problem of the frequency of epilepsy after gunshot injuries of skull and brain has not been solved although twenty-five years have gone by since the end of World War I. Since in the present war early operation and primary closure of gunshot wounds of skull and brain will probably be the method of choice, it is to be expected that epilepsy will be less frequent due to improved healing of the wounds. On the other hand, the increase of subdural hematomas without penetrating wounds recently mentioned by several authors may result in the increase of Jackson's epilepsy, especially with cases not having been diagnosed and treated at any early stage. For this reason routine treatment with luminal seems to be justified as soon as possible with *all* cases of head injuries following injury or operation. Foster Kennedy[35] urges continuation of this treatment for at least one year because of the possibility of convulsions appearing within twelve or fifteen months.

The extreme importance of examination by trained specialists and immediate treatment of head injuries, as shown by experiences in World War I, has motivated the establishment of neurosurgical centers in this war. Specialized observation will be necessary over a period of many years. As the payment of pensions to patients with head injuries will be subject to reports from regular check-ups, such payments should be easily adjusted following examination.

SUMMARY

With the introduction of the steel helmet, skull and brain injuries decreased in number. An increase has been reported, however, in injuries by small and minimal shell fragments and in subdural hematomas, with and without lesion of the tabula interna.

Immediate transportation of all patients with head injuries to the nearest neurological center, with delayed operation thereafter, is recommended. Primary closure of the skull and brain injuries following débridement and treatment with sulfonamides is the treatment of choice. Sulfonamides administered orally or intravenously have lowered postoperative mortality and improved prognosis in cases of brain abscesses and fungus cerebri. Primary closure decreases the incidence of Jackson's epilepsy as a late complication.

Patients who have had skull or brain injuries should remain for a period of years under the regular observation by competent neurosurgeons.

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RÉSUMÉ

L'introduction de casque d'acier a diminué les traumatismes du crâne et du cerveau; on a observé, néanmoins, une augmentation d'hématomes sous-duraux avec ou sans lésion de la table interne. Ces lésions résultaient de petits fragments de projectiles. Il est recommandé de transporter immédiatement le blessé au plus proche centre neuro-chirurgical. La fermeture immédiate du crâne après débridement et traitement avec les sulfonamides est la méthode préferée. Les sulfonamides administrés oralement ou intraveneusement ont diminué la mortalité postopératoire et ont beaucoup amélioré le pronostic dans les cas cérébraux et de fungus cerebri. La fermeture du crâne diminue l'incidence de l'épilépsie jacksonnienne comme complication tardive.

Les blessés du crâne doivent rester pendant une période d'années sous l'observation de neuro-chirurgiens compétents.

SUMARIO

Con el uso del casquete de acero, el daño al craneo y cerebro han disminuído en número; pero un aumento as aparente en el daño causado por pequeños fragmentos, y hematomas subdurales, con o sin lesión de la "tabula interna."

Recomienda el transporte inmediato de los pacientes con daño de la cabeza al más próximo centro de neurocirugía así como también la demorada intervención quirúrgica.

La sutura del craneo después débridement necesari

las sulfonamides es el manejo de elección.

Las sulfanomides administradas por la vía digestiva o intravenosa han bajado la mortalidad y mejorado el prognóstico en casos de abseso y de fongus cerebri.

La sutura primaria en casos de daño al craneo cerebral disminuye la incidencia de la epilepsia de Jackson como complicación remota.

Los pacientes que han sufrido daño al craneo o al cerebro deberán ser observados sistematicamente por un período de años por competentes neurocirujanos.

Выводы

Количество повреждений черепа и мозга снизилось после введения стального шлема. Однако, сообщается о росте повреждений мелкими и мелчайшими осколками бомб, субдуральных гематом с сохранностью или с нарушением целости внутренней пластинки.

Всех пациентов с поражением головы рекомендуется немедленно транспортировать в ближайший нейрохирургический центр. Оперативное вмешательство откладывается на соответственный срок. Первичное закрытие повреждений черепа и мозга вслед за обработкой раны и лечение сульфонамидами является делом выбора. Суьфонамиды per os или интравенозно снижают послеоперационную смертность и улучшают прогноз в случаях с абсцессами и размягчением мозга.

Первичное закрытие раны снижает количество случаев Джексоновской эпилепсии, как позднего осложения.

Пациенты с повреждениями черепа и мозга должны оставаться годами под регулярным наблюдением опытного нейрохирурга.

NINTH ANNUAL ASSEMBLY
UNITED STATES CHAPTER

The Medical Profession
is invited to attend the Ninth Annual
Assembly of the United States Chapter
of the
International College of Surgeons
to be held in Philadelphia, Pa.
October 3-5, 1944
Benjamin Franklin Hotel

Testicular Hormones and Their Influence on Prostatic Hypertrophy

N. KOOK, M.D.*

JERUSALEM, PALESTINE

IN few fields of surgery is the material so unilateral as in hypertrophy of the prostate. Those affected by this condition are only men and of advanced age.

Sex and age are two important factors to be considered when anticipating operative results. Regarding sex, it is a well-known fact that women are much more resistant to hemorrhage than men, and are less liable to postoperative complications; should any complication set in, this assumes a much milder form than in men. Regarding age, it is known that in patients from the age of 45 and up the postoperative death rate increases greatly.

Considering these factors, it is no wonder that the mortality rate following prostatectomy is high. Although official statistics give a mortality rate of 6-8 per cent in prostatectomy, the actual percentage is much higher if we consider all fatal cases which are both direct and indirect consequences of the operation. The latter should be included because from the patient's point of view it is of little importance whether death resulted directly or indirectly from the operation.

ENDOSCOPIC RESECTION

Endoscopic resection has reduced the mortality rate from prostatectomy. (According to Negly the ratio is 1 to 3.) However, it must be pointed out that endoscopic resection requires many victims before the surgeon has mastered the operation *lege artis.* Besides, this procedure is not possible in all cases, not to mention the problem of recidives, a solution to which has not yet been found. Now that the first enthusiasm over endoscopic resection has subsided, it is known that the mortality rate in this procedure is not as small as was first thought. (This rate fluctuates between 2 and 4 per cent according to Bumpos and MacCarthy, reaches even 10 per cent according to Randol.) No wonder, then, that new methods of treatment are being sought.

The fact that prostatic hypertrophy is associated with old age long ago gave rise to a belief in its relation to the sex organs. This condition has even been regarded as the climacteric of the male. The first to perform large-scale experiments based on this hypothesis was White. As early as 1893 he reported results in 111 cases of hypertrophy of the prostate treated by castration, in 87 per cent of which good results were obtained. This method of treatment has received little attention because not all patients are willing to undergo similar treatment and because further experimental work did not confirm the results reported by White.

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LIGATION OF VAS DEFERENS

The ligation of the vas deferens brings much closer the possible relation between hypertrophy of the prostate and the sex organs. The ligation of the vas deferens is considered very useful in cases where a continuous catheterization is instituted only to avoid an epididymitis, and is thought to have no influence on the prostate. We think this conclusion to be erroneous. Unfortunately, the few papers on the treatment of hypertrophy of the prostate by this method report only a very small number of cases. In 1932 we reported on 33 cases of hypertrophy of the prostate treated by the ligation of the vas deferens, and with good results (some of the patients also received roentgen ray and diathermic treatment). At the time we concluded that "since this condition develops only in advanced age, and by ligature, according to Steinach, we 'rejuvenate' the patient, it should disappear or at least not progress."

Unfortunately, we abandoned this method of treatment in view of the good results claimed for endoscopic resection. Even today we meet patients treated years earlier by ligation of the vas deferens who still have no prostatic complaints. It is clear that difficult cases cannot be treated by this means; furthermore, care must be taken not to cause any lesions of the nerves and blood vessels of the cord which would result in atrophy of the testis.

HORMONE THERAPY

Recent developments in endocrinology have shown the close relationship between the prostate gland and sex hormones. In 1849 Berthold discovered an internal secretion of the testis, but it was only in 1927 that MacGee succeeded in isolating a hormone from the testis. Butenant in 1931 succeeded in crystallizing from male urine a hormone called *androsteron*. In 1935 Laqueur and others found a second hormone which they called testosterone; this was found to be five to seven times more active than androsteron. Zondek, Evans and others have found gonadotropic hormone in the hypophysis; this hormone was discovered to bear some relation to the prostate. Zondek has succeeded in causing hypertrophy of the prostate through injections of pregnancy urine. Engle has, on the other hand, caused atrophy of the prostate by hypophysectomy.

Two theories have been put forward to account for the influence of sex hormones on hypertrophy of the prostate. According to the first, the testes contain a hormone having a depressive influence upon the hypophysis. With advance in age, the production of this hormone decreases or disappears altogether, and hyperfunction of the pituitary thus follows. This hyperfunction is responsible for hypertrophy of the prostate (McCullagh, Lower and others).

According to a second theory, the testes produce male and female hormones. These are in a certain equilibrium. Advanced age brings with it a disturbance in this equilibrium, and it is the preponderance of the female hormone which causes hypertrophy of the prostate (Zuckerman, Rusch and others). Whichever theory is the correct one, according to both of them hypertrophy of the prostate is not so much a surgical disease as a manifestation of a hormonal disorder. From this it follows that the primary treatment should be of hormonal nature — a treatment of compensation.

As soon as these above-mentioned papers appeared in the medical literature, many physicians, not necessarily urologists, began treating hypertrophy of the prostate with sex hormones. As might have been expected, disappointments soon followed. The reasons for these failures are obvious.

First, treatment with hormones gives good results only in those cases where no considerable anatomic changes have already taken place. In cases with complete retention or great urine residue, hormone treatment is unable to reduce the size of the prostate to an extent that will permit normal urination. In other words, the hormones have a symptomatic rather than anatomic effect. Disturbances in urination do not always correspond to the degree of prostatic hypertrophy.

Second, the dose is often incorrect. It would be reasonable to assume that the greater the dosage, the better the results. In many cases, however, large doses produce opposite effects. In the literature no definite dosage is given. It seems that when larger doses are used, the amount of hormone excreted is greater. (Little is yet known as to the excretion of hormones in a man affected with prostatic hypertrophy and in a man clinically healthy.)

Third, in many instances hormones were used in cases with no prostatic hypertrophy. Not all disturbances of urination are caused by hypertrophy of the prostate (stones, diverticulum, etc.).

Fourth, the quality of various products differs. Not all hormones on the market have proved to be effective.

AUTHOR'S RESULTS

We have administered hormonal treatment to 86 patients with hypertrophy of the prostate. According to age, they were distributed as follows:

Age	*No. of Cases*	*Per Cent*
Under 60	16	18.6
60-70	24	27.9
70-80	32	37.2
Over 80	14	16.3
	86	100.0

In every case urine and blood examinations were performed, cystoscopy, residual urine and, in the majority of cases, renal function tests. As a matter of principle, we did not give hormone treatment in cases where the urine residue was higher than 100 cc. (except in those cases where operative intervention was contraindicated; we had 8 such cases, not included in this series). Even in those cases where a patient with high retention objected to operative treatment, no hormone treatment was given. It can therefore be seen that only selected cases are reported here.

In 28 cases the medial lobe was enlarged, in 14 the lateral lobes and in 44 all lobes. Urine retention was:

Amount	*No. of Cases*	*Per Cent*
50-100 cc.	50	58.2
0- 50 cc.	32	37.2
Hypertrophy with dysuria	4	4.6
	86	100.0

In most cases we employed Neo-Hombriol (testosterone propionate). The following scheme of treatment was used:

Ten mg. Neo-Hombriol were given for four consecutive days. In cases where no improvement followed after three or four injections, this treatment was considered as not suitable and was interrupted. In those cases where nocturia and clinical symptoms showed no improvement, a further course of four injections of 10 mg. Neo-Hombriol daily was given. In these cases as well as in those in which symptomatic improvement was reported, besides a definite decrease in urine retention, another four injections of 10 mg. Neo-Hombriol were given every other day. In all cases two injections of Neo-Hombriol were given every week for three to six weeks.

On termination of this cours [illegible] treatment, a cystoscopy [illegible] d in every case. It shou [illegible] in cases with defi ment we were unable to find a marked decrease in size of the prostate. It is well known that the urinary disturbances do not always correspond to the grade of hypertrophy of the prostate. We often see huge prostates that cause no trouble and sometimes slightly enlarged prostates causing complete retention. According to Frank, 50 per cent of those affected with hypertrophy of the prostate do not complain of any disturbances. It seems probable that the hormones have an influence on the tonus of the bladder. This would eliminate a small urinary retention, with consequent improvement of the prostatitis.

It is worthy of note that in the majority of cases, besides the improvement in urination, the patients remarked on a noticeable general well-being. This was so characteristic that in several cases of senile marasmus—with no relation to the prostate—we gave Neo-Hombriol as a stimulant, with good results. There are no contraindications to this treatment, although caution must be exercised in cases with high blood pressure.

The following results were obtained by means of our hormonal treatment with Neo-Hombriol:

Sixty-nine cases were completely cured. Twelve patients returned during the following three years. In 10 of these further hormone treatment ameliorated the condition; in the other 2, notwithstanding an improvement, endoscopic resection had to be performed because of urinary retention.

Six patients died during treatment from causes *not* connected with the prostatic hypertrophy.

Seven cases showed improvement, but because of urinary retention and normal-functioning kidneys, operation was recommended.

Four cases showed no improvement.

The opinion that the influence of sex hormones on hypertrophy of the prostate is similar to that of insulin in diabetes (*i.e.*, necessitating continuous administration) was not confirmed in our material. In the great majority of cases we had complete clinical recovery lasting for months or even years.

RÉSUMÉ

Après avoir considéré la résection endoscopique et la ligature du vas deferens dans l'hypertrophie prostatique, l'auteur discute le traitement avec les hormones sexuelles.

Il n'y a pas de doute que de bons résultats peuvent être obtenus avec le traitement hormonale de l'hypertrophie prostatique. Les hormones sexuelles ont spéciale importance dans les cas avec de manifestations dysurique et aussi pour éviter de reliquats après une résection endoscopique. La choix des cas et la qualité des préparations employées ont une grande influence sur les résultats du traitement.

Les résultats du traitement dans 86 cas sont rapportés par l'auteur. Parmi ceux-ci 69 guerirent complètement.

SUMARIO

Después de considerar la resección por endoscopía y la ligadura del conducto deferente en la hipertrofia prostática, el autor discute el tratamiento por medio de las hormonas sexuales.

No hay duda acerca de los buenos resultados que se pueden obtener con las hormonas en el tratamiento de la hipertrofia de la próstata. Las hormonas sexuales son de especial importancia en los casos con manifestaciones de disuria, también para evitar los residuos glandulares después de la resección por endoscopía. La selección de los casos y la calidad de los productos que se usan tienen una gran influencia en los resultados del tratamiento.

El autor da a conocer los resultados obtenidos en 86 casos tratados, de los cuales 69 se curaron completamente.

Выводы

Осветив вопрос об эндоскопической резекции и перевязке отводящих сосудов при гипертрофии простаты, автор дает оценку современному лечению половыми гормонами.

Без сомнения, при гормональном лечении гипертрофии простаты могут быть получены хорошие результаты. Половые гормоны дают положительные результаты в случаях с дизурическими явлениями. Они так же дают возможность избежать резидуальных явлений после эндоскопической резекции.

Подбор случаев и качество подготовки, обычно, оказывают большое влияние на результаты лечения.

Автором приводится результат лечения 86 случаев. В 69 случаях наступило полное излечение.

Dr. William Henry Welch (1850-1934)

ON THE OCCASION OF THE TENTH ANNIVERSARY OF HIS DEATH ON APRIL 30, 1934

SOLOMON R KAGAN, M D.

WILLIAM H. WELCH, the Dean of American Medicine, was great in several branches of medicine. He was a genius in the field of pathology and bacteriology, a leader in public health and social welfare, an inspiring teacher and an outstanding medical organizer. He introduced the newer pathology and the newer bacteriology; he was also a founder of the Johns Hopkins Medical School and Hospital, School of Hygiene and Public Health, Institute of the History of Medicine and the Welch Memorial Library in Baltimore. He was the greatest medical educator of his time.

Several letters written by Welch which reflect the personality of this great physician and man and have an historical interest are herein reproduced.

From W. H. Welch to F. H. Garrison.

WAR DEPARTMENT
OFFICE OF THE SURGEON GENERAL
WASHINGTON

November 20, 1918.

Dear Garrison,

Thank you for your biographical sketch of Frank Baker. It is charming—you have a wonderful knack of discriminating personal characterization, and Baker had delightful personal traits. I admired and liked him greatly. We have had few more enjoyable and instinctive papers at our J. H. H. Historical Club than his papers on the two . . . and Vesalius and anatomical illustration.

I have an interesting letter from Osler which I should like to show you, if you can drop in to my room some day—

Very sincerely yours,
William H. Welch.

Baltimore, Maryland, March 10, 1920.

Dear Garrison,

I have received to-day from the Adjutant General a certificate in French which reads as follows . . . I wonder if you can give me any information what this order is, and whether any insignia go with it.

I presume that it may be some new military order widely distributed to Americans, but I have never heard of it before.

I shall be very much obliged for any information—

Very sincerely yours,
William H. Welch.

[1920?]

Dear Garrison,

. . The form of inscription, which I showed you in Washington, read as follows and was a revision of one sent me by J. Collins Warren:

William Thomas Green Morton
Born August 9, 1819
Died July 15, 1868

Before him in all time
Surgery was Agony

By his use of ether in a capital operation at the Massachusetts General Hospital on October 16, 1846 anaesthetic inhalation became known to the world as a safe, certain and complete means to annul pain and a new era in surgery began

A discovery which enables man to undergo, without the sense of pain, the severest physical trials to which human nature is subject,

Morton.

(Continued on page 159)

Sarcomatous Degeneration of Fibroma

I. TRACTENBERG, A.B., M.D., F.I.C.S. AND WM. OLIVER, A.B., M.D.*
BROOKLYN, NEW YORK

THERE seems to be a definite disagreement between authorities as to whether malignant degeneration of fibromyoma is rare. Some state that it is; whereas others claim it is not.

From a series of cases collected from literature, we may say that such degeneration varies from 1.8 to 4.3 per cent.

In our own series of 153 operations for fibromyomata uteri, two cases of sarcomatous degeneration were found, which gives a percentage of 1.3.

Why this variation exists may well be explained by the experience of Winter.[7] In a first series of 500 cases of fibromyoma, suspicious areas only being examined, sarcomatous degeneration was found in 3.2 per cent; whereas, in a subsequent series of 253, all parts of the tumor being examined microscopically, the incidence was raised to 4.3 per cent.

We agree with other authorities that the submucous type is more apt to undergo malignant degeneration more frequently.

In myomas which were not macroscopically suspicious, Kaufman has repeatedly seen isolated areas of malignant degeneration. Sometimes the center of an older fibromyoma presented such degeneration. For this reason, he considered these changes not unusual. That such changes [illegible] actually the result of degeneration [illegible] which, originally pure fibromyoma is recognizable by the considerable change in the shape of the uterus, the distortion of its cavity and the hypertrophy of its walls as found in any simple, intramural myoma of marked size and long duration.

Histologic differentiation between sarcomas and rapidly growing myomas or those with very cellular areas is not always simple. Ewing has pointed out that ordinary myomas vary in structure in different portions and probably at different periods. These suspicious areas, however, are not always progressive. They may signify a temporary or local acceleration of growth which may either subside or regress. Nor is it justifiable to consider these areas as evidence of sarcomatous transformation, *for which much more extensively altered areas or even general metastases might well be demanded.*

DIFFERENTIAL DIAGNOSIS

Some such general criterion justifying the use of either the descriptive phrase, to wit, sarcoma in fibromyoma of the uterus or sarcomatous degeneration of fibromyoma should be established. At this point it is not our intention to discuss the conflict in basic theories that has arisen over the past few years as to whether the sarcomatous character of such new growths is the result of metaplasia from already highly differentiated muscle cells or from immature myoblastic, fibroblastic or angioblastic *rests* within the myometrium or the fibromyoma. Merely finding a small area of "sarcoma" in one nodule of a uterus containing a number of otherwise "pure" fibromyomata should not justify the classification of the case as one of sarcoma. Such isolated areas, as Kaufman has noted, are not unusual changes in otherwise innocent looking fibromyomata.

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* [illegible]

Furthermore, the thoroughness with which pathologists section specimens removed at operation is variable. Likewise, the number of staining solutions employed is a matter of variable routing.

Several examples come to mind. The literature contains few reported cases of rhabdomyosarcoma. Because of its rarity, the average pathologist may not even think of this type as a possible diagnosis. Unless routine staining of uterine tumors be done with Mallory's phosphotungstic acid hematoxylin and Heidenham's iron hematoxylin, the characteristic cross-striations of rhabdomyoma might be missed.

In an excellent review by Goldberger[6] of sarcoma in fibromyoma, two cases are described in detail. The first was that of a young woman of 28 upon whom a myomectomy and a left salpingo-oöphorectomy were done for what was pathologically reported to be a "myosarcoma" and dermoid cyst of the left ovary. Further radical treatment was refused until about nine years later when she returned to the clinic complaining of a return of her irregular, prolonged menstrual periods for four months.

A complete hysterectomy and right salpingo-oöphorectomy were done. The pathologic diagnosis was multiple fibromyomata and adenomyosis uteri with normal adnexae.

The second case was that of a white woman of 37 with a uterus enlarged to the size of a ten week's pregnancy, irregularly enlarged by multiple nodules varying in size from a pigeon's egg to a hen's egg. The uterus was freely movable and not tender. At operation, multiple intramural fibromyomata in the anterior wall of the uterus were removed by shelling them out from the distinct capsules. The pathologic diagnosis was "myosarcoma."

Further radical treatment was refused. Five years later, though having no subjective complaints, her uterus having increased in size during the preceding three months, she submitted to a panhysterectomy. The pathologic diagnosis was multiple fibromyomas and adenomyosis with no evidence of sarcoma. In a personal communication to one of us Goldberger advised that "sarcoma" (the quotes are ours) was found in only one of the fibromyomata removed at the initial operation. No detailed description of the "sarcoma" was obtained in the original paper or in his personal communication. Thus, it is difficult to ascertain therefrom whether the pathologist found a "pure" sarcoma or an isolated area or several areas of "sarcomatous degeneration" in the single fibromyomatous nodule removed at the initial operation.

In both of these cases, one nine years and the other five years after the diagnosis of sarcoma was originally made, secondary laparotomy failed to reveal any further evidence of sarcoma. The literature contains many cases reported in such manner. The effect upon accurate statistics seems self-evident and leads us once more to urge that it is not justifiable to consider isolated suspicious areas as evidence of sarcomatous transformation.

A special difficulty arises from the fact that young, fast-growing, cellular myomas of medullary, white, or greyish-white app oval and spindle-shaped cells. The deciding factor is the uniformity in shape and size of the cells and their nuclei in contradistinction to the marked polymorphism of cells and nuclei in spindle celled sarcomas, and those myomas undergoing sarcomatous degeneration. In cellular myomas abundant hyaline connective tissue is often seen. During pregnancy the cells of a myoma, if the latter enlarges, may become as large as those of the pregnant uterus. In differentiating between a quickly growing *myoma*, the *common* "*pure*" spindle cell sarcoma and sarcomatous degeneration of a fibromyoma, it must be recalled that the cells of the latter are smaller and poorer in protoplasm. Up to 1928, Ewing[1] had encountered but three malignant uterine myomas with general metastases and two with local recurrence in 20 years. He concluded that "malignant degeneration of myoma must be rare." Malignant myomas produce metastases by way of the blood channels and possibly through the lymph channels. According to their growth they are, therefore, *biologically* malignant. *Histologically* they are typical myomas distinguished from sarcomatous myoma (or sarcomatous degeneration of myoma) in that their muscle cells are more highly developed (as previously stated) and are more highly uniform.

When myomatous tissue continues to grow, it gives rise, according to Kaufman,[2] not to "normal" smooth muscle cells but to sarcoma cells. The spindle shape of these newly formed sarcoma cells deviates more and more from the shape of muscle cells. Their nuclei become shorter and thicker, ovoid, polymorphous, and sometimes giant nuclei are seen. Frequently, these are hyperchromatic and show direct and indirect nuclear divisions. The cells are crowded closely with practically no interstitial substance and are short and plump. Eventually, the sarcoma cells lose all similarity to muscle cells. Since sarcoma cells are thus the "lawless" outgrowth of muscle cells, the process is not metaplasia but degeneration. Other terms occasionally employed to describe sarcomatous degeneration of a fibromyoma are "sarcomatous myoma," "myosarcoma" and, rarely, "myomatoid sarcoma." The first two terms have a reasonable pathologic basis. "Myomatoid sarcoma," on the other hand, is incorrect, inasmuch as it infers that the tumor is a sarcoma which either is or *tends to become a myoma.*

FORMS OF SARCOMATOUS DEGENERATION

Of the two forms of sarcomatous degeneration, that one arising from the myomatous components of a fibromyoma or from a "pure" myoma is more frequent than that arising from the fibrous component. A sarcoma arising from the fibrous component may properly be termed a myosarcoma or even a fibromyosarcoma. Generally, these are spindle or round cell tumors or myosarcomas.

It follows that the most frequent site should be the uterine wall. Goldberger states that 7 per cent are submucous and about 1.6 per cent subserous. He further states that about 1.3 per cent of all uterine tumors are sarcomatous, with corpus sarcoma being about eight times as common as cervical, and carcinoma about twenty-eight times as frequent as sarcoma.

Sarcoma usually is encountered in women in the age of the menopause, although it may be present at any age. Simon[3] reported a case of multiple fibromyomata of the uterus in a 50-year-old colored female of apparently 18 years duration in which associated leiomyomyxosarcoma of the uterus with peritoneal sarcomatosis were associated. Barnes[4] in reporting two cases of simultaneous occurrence of primary sarcoma and carcinoma of the uterus, states that only twenty-eight cases of such distinct, simultaneously occurring, primary malignant tumors of the uterus have been reported in the world's literature up to 1941. While a fibroid nodule was found in the wall of the uterus in one of his two cases, in neither was there definite evidence of the sarcoma having arisen on the basis of malignant degeneration of the fibroid. In each case biopsy led to the diagnosis of sarcoma. The carcinoma was found only after laparotomy. In both cases the tumors were definitely separated from each other.

BIOPSY BY CURETTAGE

At this point, some mention concerning the value of biopsy by curettage is in order. The polypoid shape of the usual endometrial sarcoma may elude the curet, whereas the average adenocarcinoma involving the endometrium rarely escapes. Then, too, the more malignant types of adenocarcinoma may present a gross polypoid appearance similar to the majority of endometrial sarcomas. Such cases of "sarcoma appearing in fibromyoma" have almost uniformly been reported in the literature as such only after laparotomy for fibromyoma and subsequent pathologic examination. Hence, the diagnostic curet offers little assistance in diagnosis of malignant sarcomatous degeneration of an apparently benign fibromyoma.

Occasionally, a thick soft sarcomatous polyp, attached to the main fibromyoma in the corpus of the uterus, may hang down into the dilated cavity as far as the cervix. If the uterus itself is not enlarged too much and its contour none too irregular or the patient's abdominal wall somewhat obese, making delineation of the uterus rather difficult, the finding of such a protruding polyp may lead one to infer that he is dealing with a bleeding cervical polyp of the average benign variety. To twist off and cauterize the base (?) of such a polyp in the office, and dispose of the specimen in the waste can, instead of sending it to the pathologist, as is so often the case in the average handling of cervical polyps, may have dire consequences for the patient.

Indeed, there are no characteristic symptoms. Goldberger mentions, as suggestive symptoms, a rapid growth of a myoma with a feeling of pelvic distention and painful uterine contractions, especially if these symptoms occur at the menopause or after x-ray therapy for fibroids. If there were symptoms significant of sarcomatous degeneration of a fibromyoma, it seems hardly likely that 72 cases reported by Evans[10] o sarcoma of the uterus in 4000 cases of fibromyoma at the Mayo Clinic would have all been incorrectly diagnosed preoperatively as simple fibromyoma.

PERCENTAGE OF CURES

Evans[10] reported 100 per cent and Steinhardt (quoted by Goldberger) 80 per cent five-year or more cures if operated on early. It is difficult to evaluate these statistics since the question of finding areas of "sarcomatous degeneration" (as previously discussed when giving the opinions of Ewing and Kaufman) comes into play. Since, however, there is always the possibility of extension it would appear wisest to perform a panhysterectomy including the adnexae, if the sarcomatous element appears, *grossly*, t invade the uterine wall. Confronted, however, with a young woman in the child-bearing age and desirous of having at least one child, a pathologic report of "sarcomatous degeneration" in one of the fibromyomas enucleated during the course of a conservative opera[illegible] not, we believe wi[illegible] the recommenda[illegible] shoul[illegible] [illegible]nd

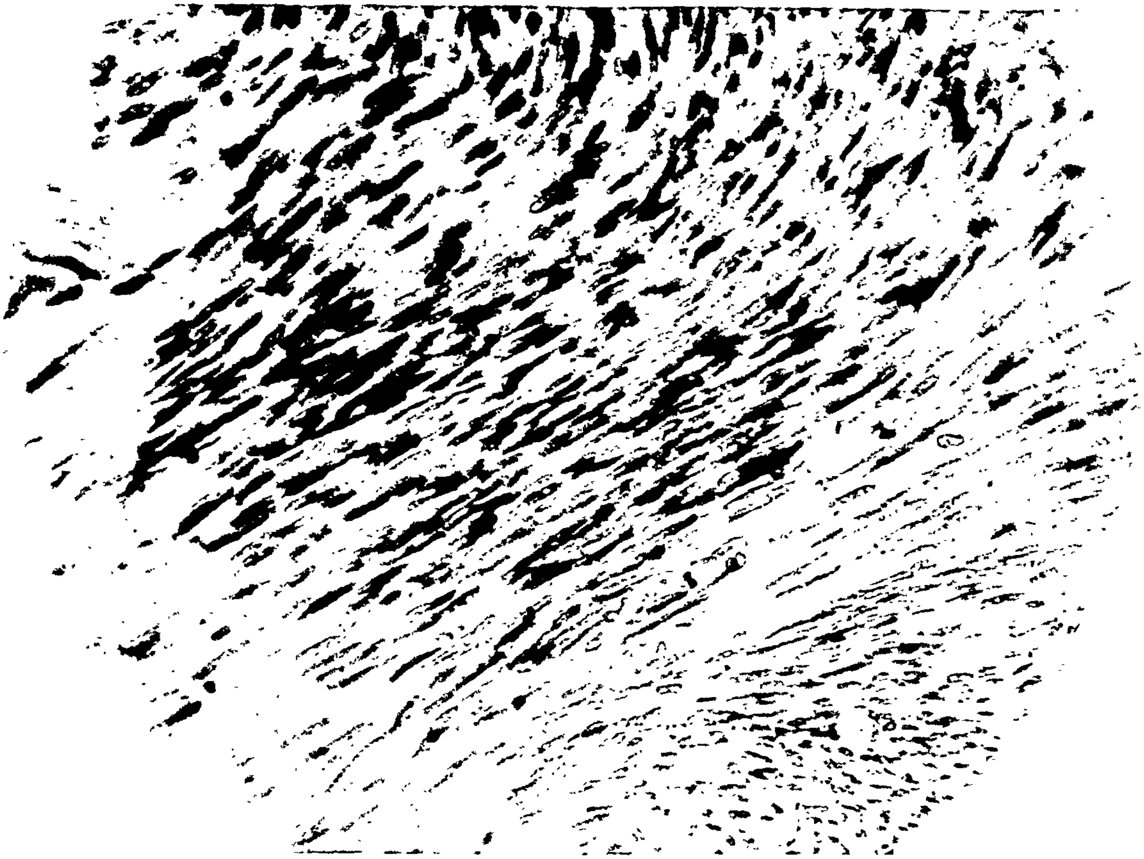

Fig. 1. *Case 1.* Section of uterus showing thickened fibrotic uterine wall with intramural nodules under high-power magnification.

further operation of a complete panhysterectomy including the removal of the adnexae.

X-RAY THERAPY

There seems to be some conflict as to whether x-ray therapy is of value. Kaufman, quoting Seitz and Wintz, states that "sarcomas react to the x-rays quite differently from fibromyomas. While the latter regress very slowly, possibly because of cessation of ovarian activity, sarcomas are quickly and directly affected and disappear in a few weeks. Partially sarcomatous fibromyomatas shrink more slowly." Smith[13] on the other hand, reporting on cases treated at the Memorial Hospital in New York City, concludes that "it must be assumed that sarcoma of the uterus is not sensitive to radium or to x-rays in a comparative sense. Possibly with further development or with variation of the several therapy factors, such as use of the million-volt machine, a more optimistic estimation may replace the present pessimism as to the futility of irradiation therapy for sarcoma of the uterus."

It is our impression that Smith is referring to that type of sarcoma which invades either wall or the endometrium of the uterus and not, as we have already repeatedly pointed out to those "areas of degeneration" of "sarcoma" found at the center of fibromyomas appearing grossly benign at the operating table and reported to be "sarcoma" only after careful microscopic examination.

Reports of two of our cases treated surgically follow.

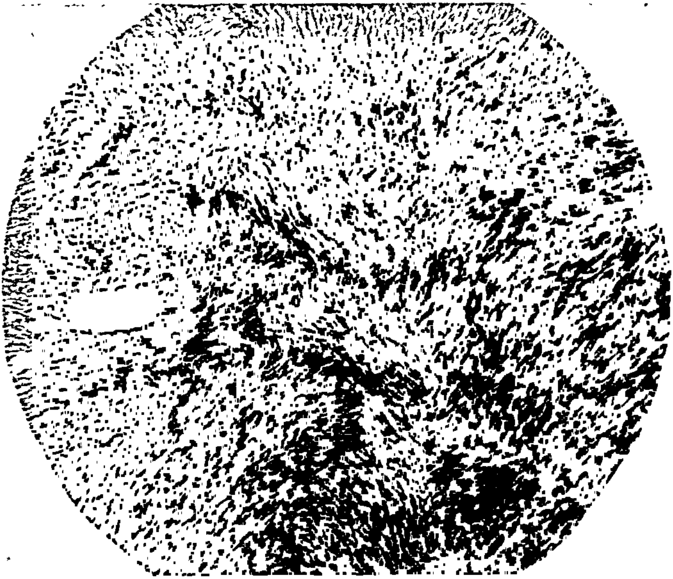

Fig. 2. Low-power magnification of same section.

CASE REPORT

Case 1. White female, aged 56, was admitted to the hospital on Nov. 10, 1936. The patient's history revealed that in the early part of Feb., 1936, she had a D and C done in order to stop irregular uterine bleeding. At that time a diagnosis of fibroid uterus was made.

Bleeding stopped within the next three days and she remained well up to Oct., 1936, when she was suddenly seized with severe cramps in the lower abdomen, and vaginal bleeding started again. Examination revealed some tenderness and slight rigidity in the lower abdomen. Pressure-released tenderness was not present in the lower abdomen. Vaginal examination revealed the cervix in the normal axis rather hard and closed. The uterus was moderately movable, enlarged to the size of a three-month pregnancy. There was a mass present on the fundus.

Urine examination was negative, white blood count was 16,300, polymorphonuclears 84 per cent, lymphocytes 12 per cent, monocytes 4 per cent, hemoglobin 73 per cent, and the red blood cell count was 3,600,000.

A preoperative diagnosis of degenerated fibroid of the uterus was made. A laparotomy was performed under spinal anesthesia. There were several small subserous fibroids at the fundus. Both tubes and ovaries showed evidence of a chronic inflammation. A total hysterectomy and bilateral salpingo-oöphorectomy was performed.

The patient made an uneventful recovery and was discharged eighteen days after the operation.

The removed uterus was about the size of a large grapefruit, of irregular shape, with a small enlargement of the left side of the fundus. Section made through the entire uterus showed a thickened fibrotic uterine wall with intramural nodules.

One nodule protruded into the thickened

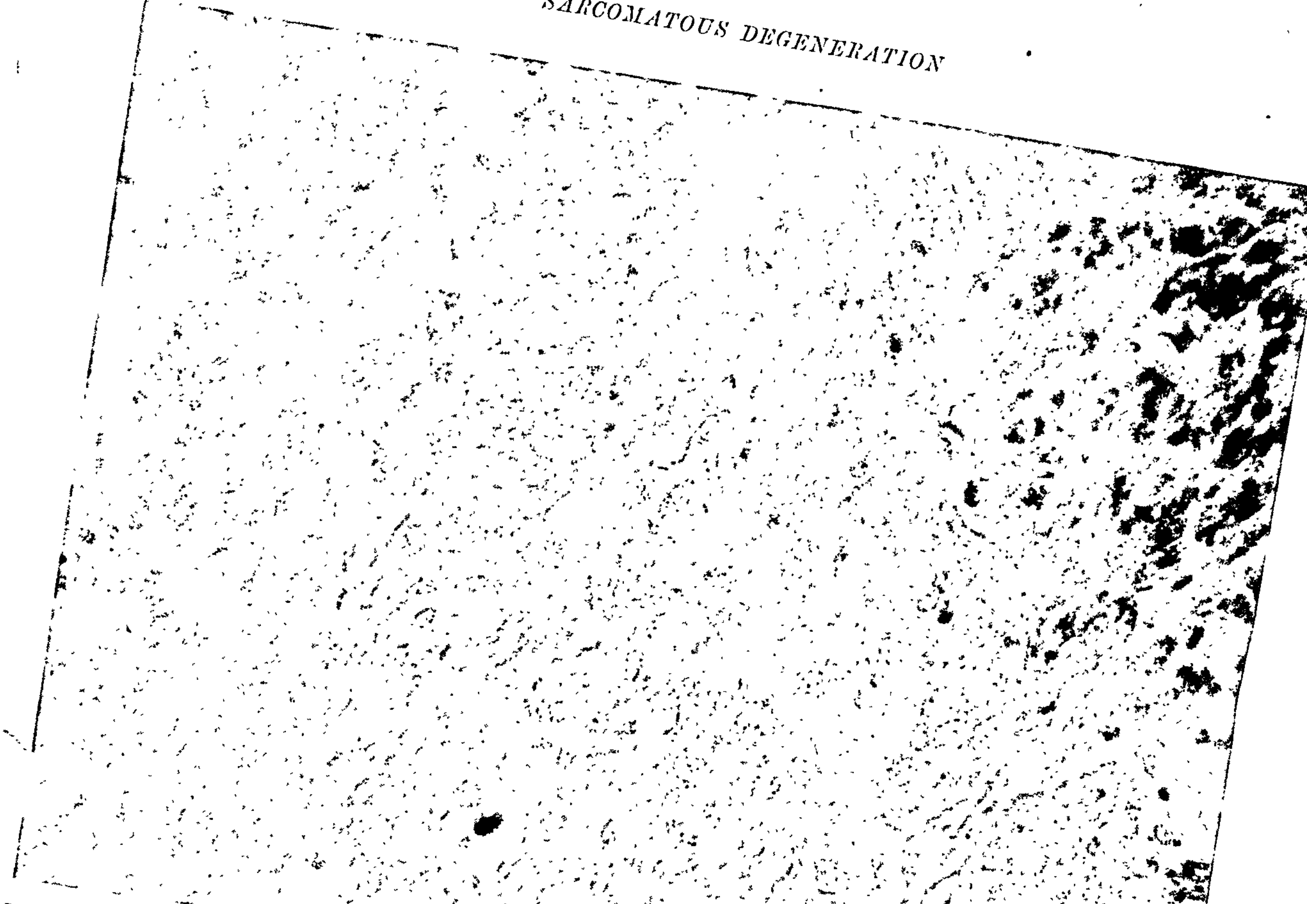

Fig. 3. *Case 2.* Section of the globular intramural uterine tumor, which was in the main soft and edematous, containing many irregular cystic cavities. Macroscopically it was deep yellow in color, revealing extensive degeneration.

and congested uterine cavity. The surface of the nodule was irregular in shape, the tissue was soft, mushy and red in appearance and was covered with a bloody material. At one portion, it was grayish white in color.

Microscopic examination showed that the tumor tissue consisted of irregular polymorphonuclear cells, most of which were spindle shaped. The nuclei were of unequal size and shape. Some of them were hypochromatic and mitotic figures were present.

Pathologic diagnosis: Spindle shaped sarcoma.

Case 2. A white, unmarried female, 47 years old, was admitted to the hospital on May 12, 1936. Her history revealed that for the past sixteen months her menstrual period, which ordinarily lasted four days became prolonged to ten and twelve days. She also had intramenstrual bleeding at four occasions and fullness and dull pain in the lower abdomen.

Upon examination, a large mass was palpable in the lower abdomen reaching up to the umbilicus. No point of tenderness was palpable. Upon vaginal examination, the cervix was soft and pointing anteriorly. The uterus was enlarged to the size of a five and a half month pregnancy and was freely movable. A diagnosis of fibroid uterus was made.

A laparotomy was performed and a large fibroid uterus was found. Both ovaries were cystic and enlarged. A panhysterectomy and a bilateral salpingo-oöphorectomy was performed under spinal anesthesia.

The patient made an uneventful recovery and was discharged fifteen days after operation.

The specimen removed was an enlarged uterus the size of a small melon. It was

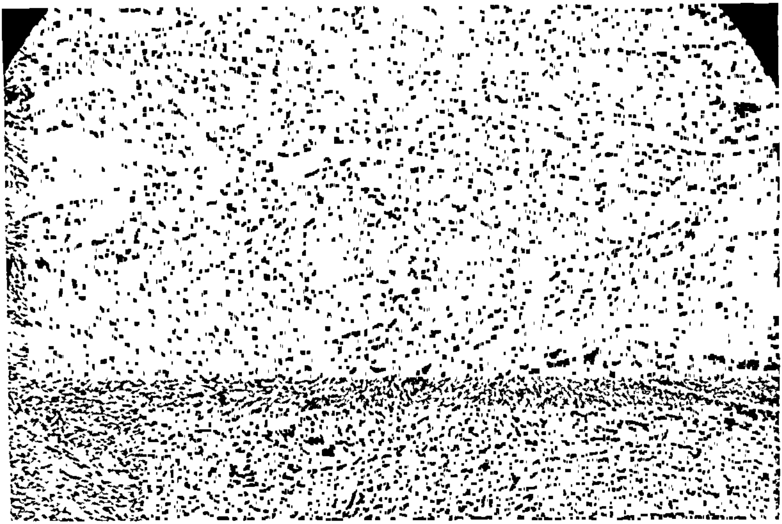

Fig. 4. Same section as preceding viewed under low-power magnification.

globular, somewhat irregular in shape. Upon cutting the specimen in half, a single globular intramural tumor was found. The main portion of the tumor was very soft, edematous, contained many small, irregular cystic cavities. The color was deep yellow, showing extensive degeneration.

Histologic examination revealed a tumor similar in architecture to an ordinary fibromyoma, yet of enormous cellularity. The nuclei of these cells were densely packed, their size and shape very irregular. Their chromantine content was increased. Mytosis were present.

Pathologic diagnosis: Sarcomatous degeneration of fibromyoma.

The treatment in both cases consisted of a panhysterectomy with wide excision and simultaneous removal of both appendages. This was followed by deep x-ray therapy.

Both patients, operated on more than five years ago, are alive and well.

We believe surgery is the main and the only method of treatment. It is tremendously important to open up every uterus and examine the endometrium and all myomas as soon as removed. If suspicious areas are seen, they should be examined immediately by frozen section. If a diagnosis of sarcoma is made, tubes and ovaries can then be removed immediately without delay.

SUMMARY

1. If all parts of the tumor are examined, the incidence of sarcomatous degeneration will be greater than if only suspicious areas are examined.

2. Ordinary myomas vary in structure in different portions and probably in different periods, these suspicious areas are not always progressive and there may be a temporary local acceleration of growth which may either subside or regress.

3. From accurate statistics it seems self-evident that one is not justified in considering isolated suspicious areas as evidence of sarcomatous degeneration.

4. Great care should be taken in differentiating between a fibrosarcoma and adenomyosis.

5. Or merely finding a small area of "sarcoma" in one nodule of a uterus containing a number of otherwise "pure" fibromyomata should not justify the classification as one of sarcoma.

6. The diagnostic curet offers little assistance in diagnosis of malignant sarcomatous degeneration of an apparently benign fibroma. Any cervical polyp should be carefully examined by a competent pathologist as to its nature.

7. If in a woman past the childbearing period, who is undergoing operation for fibromyoma, a grossly suspicious area is seen, we believe a panhysterectomy including the adnexae should be performed.

8. In a young woman of childbearing age, and desirous of having at least one child, a pathologic report of sarcomatous degeneration in one of the fibromyomas enucleated during the course of a conservative operation should not lead to the recommendation of an immediate, complete panhysterectomy including the removal of the adnexae.

9. Sarcoma of the uterus is not sensitive to radium or to x-ray in a comparative sense. Possibly with further development or with variation of the several therapy factors, a more optimistic estimation may replace the present pessimism as to the utility of irradiation therapy for sarcoma of the uterus.

Deep x-ray therapy should follow operation in all cases.

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SUMARIO

En una serie de 153 operaciones para las fibromiomatas uteri, el autor encontró con dos casos de degeneración sarcomatosa, esto es un incidencia de 1.3 por ciento. Estos dos casos son aquí discutidos con especial referencia al diagnóstico diferencial y el tratamiento de la degeneración sarcomatosa, con las conclusiones siguientes:

(1) Examen de todas partes del tumor y no solamente de porciones sospechosas, dará al reconocimiento de mayor incidencia de degeneración sarcomatosa.

(2) Miomas comunes varian en su estructura, con signos de aceleración local.

(3) Areas sospechadas, no deben ser consideradas como prueba de degeneración sarcomatosa.

(4) Gran cuidado es necesario en diferenciar fibrosarcoma y adenomiosis.

(5) Pequeña area de sarcoma entre "pura" fibromata no justifica la clasificación de sarcoma.

(6) Un raspado diagnóstico tiene poca utilidad.

(7) La panhisterectomía se recomienda para fibromioma con areas sospechosas en mujeres que han pasado el período de generación.

(8) En mujeras aún en condición de concebir, en casos de fibromioma, la histerectomía completa, incluyendo las anexas, no deben hacerse.

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[*] The authors gratefully acknowledge the valuable assistance of Dr. Morris Weintraub in compiling a great part of the bibliography.

(9) Sarcoma del utero no es radiosensitiva. Los rayos-x, con penetración profunda, deben emplearse después de operación en todos los casos de degeneración sarcomatosa de fibroma.

RÉSUMÉ

Dans une série de 153 opérations pour fibromyomes utérins les auteurs ne rencontrent que deux cas de dégénéréscence sarcomateuse, une incidence de 1.3 pour cent. Ces deux cas sont analysés et le diagnostic différentiel ainsi que le traitement de la dégénéréscence sont discutés. Les conclusions suivantes sont permises: (1) Un examen de différentes sections de la tumeur révélera une plus grande fréquence de dégénéréscence sarcomateuse. (2) Tous les myomes ordinaires ne présentent pas la même structure et il peut avoir des accélérations temporaires de développement dans certaines aires. (3) Des sections isolées suspectes ne doivent pas être considérés comme sarcomateuses. (4) Il faut différentier entre fibro-sarcome et adenomyose. (5) Une petite section de sarcome dans un fibrome typique ne justifie pas le diagnostic de sarcome. (6) Le curettage diagnostique a peu de valeur. (7) On pratiquera la panhystérectomie dans les cas suspects chez les femmes ayant passé la ménopause. (8) Le sarcome de l'utérus n'est pas radio-sentitif. (9) La x-ray thérapie profonde postopératoire sera pratiquée dans tous les cas de dégénéréscence sarcomateuse de fibromes utérins.

Выводы

В серии 153 операций по поводу фибромы матки автор обнаружил 2 случая саркоматозной дегенерации, т. е. 1,3%.

Эти 2 случая демонстрируют, и автор дает очерк дифференциальной диагностики и касается лечения саркоматозной дегенерации. Автор приходит к следующим выводам: 1) Тщательное исследование разных участков опухоли, а не исследование только подозрительных очагов дает большую возможность распознать большее количество случаев саркоматозной дегенерации; 2) Обычная миома матки дает разнообразную гистологическую картину. Миома может давать временное местное ускорение своего роста; 3) Изолированные подозрительные области должны быть рассматриваемы, как проявление саркоматозной дегенерации; 4) Необходимо уделить больше внимания дифференцировке фибросаркомы и аденомиозиса; 5) Небольшой саркоматозный очаг в "чистой форме" фибромы матки является еще поводом для отнесения этой матки к саркоматозной; 6) Диагностическое выскабливание не представляет клинической ценности; 7) Удаление матки рекомендуется у женщины, находящейся в послеродовом периоде и у которой обнаружены подозрительные саркоматозные участки. 8) Не следует прибегать к полной панхистеректомии с удалением придатков у женщины в послеродовом периоде; 9) Саркома матки не чувствительна к радиолучам. Глубокая терапия х-лучами должна проводиться во всех случаях саркоматозного перерождения фибромы.

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Apreciaciones sobre la Pelvis de la Mujer Oaxaquena*

(Considerations on the Pelvis of Women from Oaxaca)

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SUMMARY

The author has measured 3,464 pelves of women from the state of Oaxaca, and has calculated the averages of each diameter. He has found lower figures than those given by the French. The pelves of the Oaxaca women are abnormal and of the flat and uniformly contracted type. The diameters for comparison are as follows:

Oaxaca: Anteroposterior 17
France: Anteroposterior 20
Oaxaca: Bi-spinous 22
France: Bi-spinous 24
Oaxaca: Bi-crestal 27
France: Bi-crestal 28
Oaxaca: Bi-trochanteric 30
France: Bi-trochanteric 32

ES PRINCIPIO fundamental en pelvimetría que para estimar las dimensiones de los diámetros externos debe tenerse en cuenta, además de la longitud de estos diámetros, la proporción que existe entre ellos y se ha aceptado entre nosotros el promedio indicado por los autores, especialmente los franceses, que nos dan las cifras de 20, 24, 28 y 32 como normales y hacen la salvedad que puede considerarse una diferencia de dos centímetros en cada uno de ellos, sin que ésta circunstancia quiera decir dicha pelvis no es normal.

Sobre esta base se estiman las dimensiones y proporciones de todas las mujeres embarazadas y se catalogan como normales las pelvis que guardan dichas dimensiones y proporciones.

Desde mis años de estudiante, en que sentí verdadera afición por el estudio de la Obstetricia, observaba con mucha frecuencia que las cifras indicadas en el texto no coincidían con las recogidas al efectuar las pelvimetrías en la Clínica; por otra parte observé multitud de ocasiones que a pesar de esta circunstancia los partos eran fisiológicos o por lo menos, si había distocia, no era consecutiva precisamente a la desproporción de la pelvis.

Después al hacerme cargo de la cátedra de Obstetricia en el Instituto de Ciencias del Estado, hace once años, en el Centro de Higiene Infantil de los Servicios Sanitarios, en la Casa de Maternidad del Gobierno del Estado y en el ejercicio profesional, procuré ir haciendo la observación cuidadosa de las pelvis de todas las enfermas que estaban a mi alcance y formé una pequeña estadística que a la fecha comprende 3,464 casos sobre los cuales considero que ya pueden sacarse algunas conclusiones.

Las pelvimetrías que he recogido han sido tomadas en mujeres entre los 18 y los 40 años, la mayoría multíparas y todas gestantes.

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* Presented at the Third International Assembly of the International College of Surgeons held in Mexico City, August, 1941.

Los resultados de la observación de esta estadística deben tomarse en cuenta, en mi concepto, porque las proporciones de todas las pelvis medidas son casi uniformes y por otra parte el número de observaciones recogidas, ya me parece suficiente para autorizarnos a deducir una conclusión sobre este asunto.

Analizando de una manera general las cifras recogidas puede decirse que las pelvis examinadas son más pequeñas que las que indican los libros como normales, pues solo hay 8 que coinciden con las medidas clásicas que hemos venido aceptando hasta ahora; el resto varía considerablemente; pero aún dentro de esta variación, se nota que oscila dentro de ciertos límites, constituyendo un tipo especial de cintura ósea de nuestras mujeres, característico, que difiere de la “pelvis tipo” preconizada por los parteros europeos.

Entrando en detalles respecto a la medida de cada diámetro, puede observarse que el anteroposterior es el que mayormente varía, encontrándose por término medio 17 centímetros.

El diámetro biespinoso da un promedio de 22 centímetros.

El diámetro bicresto mide en la mayoría de los casos 27 centímetros y por último el bitrocantereo mide sensiblemente 30 centímetros en casi la totalidad de los casos.

Sentados estos datos y teniendo a la vista el alto porcentaje de las cifras obtenidas con relación al número de pelvis examinadas, puede concluirse que los caracteres particulares de las pelvis de nuestras mujeres se definen claramente y constituyen un tipo especial de cintura ósea, distinta de la pelvis europea, pero que representa nuestras características étnicas y biológicas y por lo tanto es la normal entre nosotros.

Si recordamos lo que los autores nos enseñan y tomamos como tipo de pelvis normal aquella que midiera 20, 24, 28 y 32 centímetros, nos veríamos obligados a conceptuar como anormal toda pelvis que se alejara de estas dimensiones y proporciones y en este caso, deberíamos concluir que todas las pelvis oaxaqueñas son anormales; lo que nos haría caer en un error de apreciación, pues debe tenerse en cuenta que las cifras citadas por los autores corresponden a promedios obtenidos por el mismo sistema, es decir por el porcentaje de mediciones múltiples y el resultado de ese trabajo estadístico les dió como conclusión su “pelvis tipo,” con sus medidas correspondientes; pero esa “pelvis tipo” es la europea. A nosotros toca el trabajo de caracterizar la “pelvis tipo” mexicana, que seguramente difiere de la anterior como difieren las condiciones raciale antropológicas, etc. Por otra parte nosotros por el solo hecho de que no estén idénticas a las europeas, cuando puede observarse, como a diario sucede, que no presentan trastornos distócicos por estas diferencias en la pelvimetría.

Estamos pues autorizados por estas observaciones a establecer como normal entre nuestras pelvis, un tipo especial, característico, que constituye la pelvis normal entre nosotros, aunque difiera de la europea.

Si comparamos ahora nuestra “pelvis tipo,” con la pelvis descrita en las obras de texto, encontramos rasgos que la caracterizan ampliamente; desde luego puede apreciarse que nuestra pelvis es más pequeña en general que la que se ha venido tomando como normal; por otra parte puede notarse que el diámetro de Baudeloque está más disminuído que los demás, es decir presenta un tipo de “pelvis plana y uniformemente estrecha” según la clasificación de Favre; pero que en este caso no debe considerarse como un vicio de conformación de la cintura pélvica, sino como característic de nuestra pelvis en comparación con la europea.

Teniendo a la vista las cifras obtenidas por las pelvimetrías que he efectuado, he podido observar que los partos se verifican a diario con toda normalidad y nunca he observado distocia pélvica en mujeres que presente las dimensiones de *17, 22, 27,* y *30* centímetros en sus respectivos diámetros.

Siempre he considerado de capital importancia para el estudio de la Obstetricia, formar estadísticas amplias y completas que nos autoricen en definitiva a establecer las características pélvicas de nuestra raza, pues erróneamente se ha venido enseñando en las Escuelas de Medicina del País que la base métrica normal es la europea y llegando al terreno práctico, puede verse que difiere considerablemente de la nuestra.

Ojalá que esta modesta contribución sirva para iniciar en todos los centros obstétricos de la República, la formación de una estadística completa de la pelvis mexicana, estudio que sería de mucho interés para el ejercicio diario de la profesión y que sentaría ante el mundo médico el concepto de que estamos esforzándonos por fundamentar científicamente la medicina mexicana.

SUMARIO

El autor ha medido 3,464 pelvis de mujeres de Oaxaca, y sacado los promedios de cada uno de los diametros.

Ha encontrado que las cifras son más bajas que las europeas hasta el punto de entrar, segun los autores europeos, en la categoría de anormales, de tipo plana y uniformemente estrechada.

Los diametros son, en comparación con los que dá la Escuela Francesa:

Oaxaca: Ant.-Post...17; Bi-espin....22
Francia: Ant.-Post...20; Bi-espin...24
Oaxaca: Bicresta....27; Bitroc.....30
Francia: Bicresta....28; Bitroc.....32

A pesar de esta disminución, el parto se verifica sin distocia de origen pélvico. No puede, pues, hablarse de Anormalidad sino de tipo Étnico.

RÉSUMÉ

L'auteur a mésuré 3,464 pelves de femmes de la province de Oaxaca, et calculé les moyennes de chaque diamètre.

Il a trouvé des chiffres inférieures a celles données par les auteurs français, jusqu'au point d'entrer, selon la classification française, dans la catégorie d'anormaux, du type plat uniformément rétreci.

Les diamètres sont, en comparaison avec les chiffres données par l'École Française:

Oaxaca: A-p 17; Bi-épin. 22; Bi-crête 27; Bitroch. 30.
France: A-p 20; Bi-épin. 24; Bi-crête 28; Bitroch. 32.

Cependant, l'accouchement se fait sans dystocie d'origine pelvienne. On ne peut donc pas parler d'anormalité, mais de Type Ethnique.

Выводы

Автор провел измерение женского таза в 3464 случаях, в штате Оксака и вывел средние цифры каждого диаметра.

Он нашел более низкие цифры, чем те, которые приводятся Френчем (French).

Таз женщины штата Оксака отступает от нормы, от приплюснутого и единообразно суженного типа.

Для сравнения приводятся следующие диаметры:

Оксака: передиезадний 17
Франция " 20
Оксака: биспинальный 22
Франция " 24
Оксака: межгребешковый 27
Франция " 28
Оксака: межтрохантернальный....30
Франция ' 32

Técnica Simplificada para la Dacriocistorrinostomía*

(Simplified Technic for Dacriocystorrinostomy)

A. TORRES ESTRADA, M.D., F.I.C.S.

MEXICO, D F

SUMMARY

The author considers the treatment par excellence for dacryocystitis to be the external operation of dacryocystorrhinostomy. This operation has not come into general favor due to the difficulties encountered in closing the incision accurately by means of the mucomucosal suture. The suture resorted to via the endonasal route, combined with an external approach, is practical, relatively secure, and gives good results.

SIN duda uno de los padecimientos oculares más molestos es la dacriocistitis, por la epífora constante que nubla la visión precisamente cuando el paciente dirige la mirada hacia adelante y abajo para ejecutar algún trabajo manual, la escritura, la lectura, etc. El fenómeno es debido al prisma de lágrimas que se forma entre el párpado inferior y el globo ocular, y que llega a interponerse parcialmente en el campo pupilar. Esta nublazón desespera al enfermo y lo imposibilita para ejecutar trabajos delicados. Por otra parte, el foco séptico constituído por el saco lagrimal infectado no sólo constituye una amenaza para la integridad del ojo, que puede enfermarse y aún perderse, sino que, el continuo contacto de las manos del paciente con la secreción purulenta del saco lo incapacita para aquellos trabajos que requieren manos limpias (medicina, enfermería, preparación y venta de comestibles, etc.).

Como se vé la dacriocistitis, a pesar de no ser en sí un padecimiento grave, por no afectar directamente al globo ocular, sino a uno de sus anexos, es de *gran importancia y tiene una trascendencia* social digna de atención, circunstancias que habitualmente no se le reconocen.

De lo anterior se desprende la necesidad de emplear para el tratamiento de este padecimiento un método capaz de suprimir esta invalidez relativa del paciente, eliminando al mismo tiempo la epífora y el estado séptico del saco lagrimal.

Esto solo es posible conseguirlo de dos maneras: Restableciendo la permeabilidad de las vías lagrimales obstruídas, o creando una comunicación artificial entre el saco lagrimal y la cavidad nasal.

En consecuencia todo tratamiento de las dacriocistitis que no se ajuste a estas dos condiciones resultará incompleto y defectuoso.

De acuerdo con estas indicaciones lógicas se ha tratado de restablecer la permeabilidad [illegible] vías [illegible] ales [illegible] medio del [illegible], p[illegible] de una cánula dejada a permanencia en el canal nasal, y por la dilatación forzada de las vías excretoras por medio de sondas gruesas. El cateterismo de las vías lagrimales empleado por Bowman el año de 1850 con el objeto antes indicado es el único de estos métodos antiguos que ha podido llegar hasta nuestros días como un recurso útil. Desgraciadamente sus indicaciones están limitadas casi de una manera exclusiva a los casos de estenosis o de obstrucciones recientes y a las dacriocistitis del lactante por obstrucción congénita de dichas vías. Es impracticable en los casos de obstrucción antigua, y tienen como inconvenientes, ser un tratamiento muy doloroso, muy prolongado y de resultados muy inconstantes. Por este motivo en mi práctica hospitalaria y en la clientela particular limito el cateterismo a 6 u 8 sesiones, y juzgo que es inútil continuar el tratamiento por más tiempo si para entonces no se ha restablecido el paso normal de las lágrimas. Por otra parte, el cateterismo ocasiona a veces desgarros del punto lagrimal, estenosis y obstrucciones de los canalículos como consecuencia de una falsa vía, cuyos inconvenientes constituyen una dificultad seria para emplear posteriormente un tratamiento más eficaz.

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Los inconvenientes del cateterismo y sus fracasos frecuentes hicieron idear la manera de crear una comunicación entre el saco lagrimal y la cavidad nasal lo cual se ha logrado en la actualidad mediante la dacriocistorrinostomía. Creo que debe asentarse como un criterio ya bien definido que se debe practicar esta operación cuando el cateterismo sea impracticable, o si después de haberlo practicado la epífora continúa o reaparece. La intervención resulta menos molesta para el paciente que un cateterismo y proporciona resultados muy constantes y altamente satisfactorios.

Los métodos destructores del saco lagrimal para el tratamiento de las dacriocistitis eran conocidos desde las épocas más antiguas de la Medicina. En efecto desde Galeno y Celso, hasta la invención del cateterismo de las vías lagrimales, el tratamiento había consistido en la destrucción del saco por el cauterio o los agentes químicos. No fué sino en época relativamente reciente o sea el año de 1858 en que Berlin dió a conocer la extirpación del saco lagrimal cuyo método operatorio hasta la fecha es empleado por la mayor parte de los cirujanos oculistas.

Siendo la extirpación del saco una operación tan universalmente aceptada, creo indispensable detenerme un poco para juzgar de sus ventajas e inconvenientes.

La ventaja principal de la extirpación del saco, consiste en la eliminación del foco séptico, lo cual le podría dar la preferencia en aquellos casos en que posteriormente se tuviere que practicar una operación en el globo ocular.

A cambio de esta ventaja capital tiene varios inconvenientes.

A. Es una operación mutilante e imposibilita al órgano de excreción lagrimal para un tratamiento posterior más completo y racional.

B. Es antifisiológica y deja el síntoma más molesto para el enfermo, que es la epífora.

C. No es verdad que la epífora tienda a disminuír con el tiempo, como es la creencia generalmente aceptada. De todas maneras aunque disminuya todavía resulta ser tan molesta para el paciente como antes de haber sido practicada la operación.

D. Es frecuente que la operación se haga incompleta lo que da por resultado que el paciente continúe con la epífora y la blenorrea del saco lagrimal.

Los primeros intentos dignos de tomarse en cuenta, para hacer una comunicación entre el saco lagrimal y la nariz, remontan a principios del siglo XVIII con Woolhouse, quién obtuvo algunos éxitos transitorios dejando a permanencia una cánula de oro que atravesaba el ancho espesor de la pared nasal. Posteriormente la cánula se eliminaba y la comunicación se obstruía. Después, hasta el año de 1914 Toti señala nuevamente la posibilidad de hacer dicha comunicación practicando una amplia trepanación de las paredes de la cavidad nasal. Por esa misma época algunos rinólogos como Calwell, Passow y otros más idearon establecer dicha comunicación por vía endonasal y sus trabajos fueron los precursores de los métodos de West, Polyack, Yankauer y otros más, que en la actualidad se practican. Finalmente Ohm el año de 1914 y más tarde Dupuy Dutemps, resolvieron satisfactoriamente el problema de obtener una comunicación perfecta y con resultados definitivos, mediante la sutura de la mucosa del saco con la de la cavidad nasal.

Los métodos de dacriocistorrinostomía interna, o endonasal reposan en la posibilidad de establecer una comunicación entre la parte más inferior del saco lagrimal y las primeras porciones del canal nasal, por ser el punto más cercano de estas vías con la cavidad nasal, detalle que puede apreciarse claramente en la Figura 1 que corresponde a un corte horizontal practicado inmediatamente abajo de la comunicación del saco lagrimal con el canal nasal. No es posible practicar suturas entre el colgajo de mucosa nasal y las paredes del saco, lo cual da a la dacriocistorrinostomía interna una grand inferioridad con relación a la dacriocistorrinostomía externa. Por otra parte, en la práctica no es siempre posible encontrar una pared ósea bastante delgada que permita el fácil abocamiento de las cavidades. En cambio, es de tener en cuenta que las vías lagrimales están prácticamente incluídas en el etmoides anterior y demás huesos que forman la pared nasal externa y que las dacriocistitis son la consecuencia de osteitis y demás inflamaciones de esta pared. Una comunicación más o menos pequeña entre el saco y la nariz sin suturas mucomucosas a través de la pared huesosa más o menos enferma predispone a un fracaso ulterior; y de hecho la dacriocistorrinostomía interna no proporciona los resultados brillantes que la dacriocistorrinostomía externa.

Es de llamar la atención que haya sido preciso al transcurso de tantos años y de innumerables intentos, seguidos de fracaso para encontrar la solución del problema en una regla tan elemental de cirugía general como es la de practicar la sutura entre las paredes de dos cavidades entre las que se [illegible] estab[illegible] una anastomosis. Y [illegible] má [illegible]

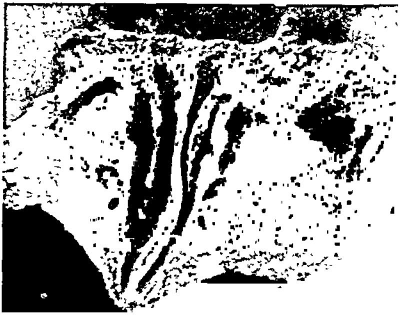


Fig. 1. Corte horizontal immediatamente debajo communicación sacrolagrimal en canal nasal.

llamar la atención cómo esta operación, siendo ya una realidad tangible en manos de algunos cirujanos, todavía no haya tenido la generalización que debería tener y que han tenido otros métodos operatorios y terapéuticos de resultados relativamente menos seguros, como la diatermocoagulación en el despegamiento de la retina y el propio cateterismo en las dacriocistitis.

Las razones por las cuales no se ha generalizado la dacriocistorrinostomía no dependen de que esta *operación* sea de resultados inferiores a la extirpación del saco lagrimal, ni porque esta operación proporciones resultados bastante aceptables en la práctica. La verdad es que el hecho de seguir empleando una operación mutilante recibe algunas concesiones de quienes la practican; pero seguramente la extirpación del saco que cuenta aún con innumerables partidarios acabará por ser abolida.

Indudablemente que la principal razón por la cual la dacriocistorrinostomía no se ha generalizado es lo difícil y laboriosa que resulta en relación con la extirpación del saco: otra razón es los malos resultados que se obtienen cuando la operación ha sido mal ejecutada. Es verdad que la dacriocistorrinostomía es una operación difícil y esta dificultad depende de varias circunstancias. Una de ellas es el espesor de la pared ósea que separa el saco lagrimal de la mucosa nasal, que es nada menos que todo el espesor del etmoides anterior, el cual en algunos pacientes puede alcanzar hasta tres centímetros (Fig. 2). Otra dificultad es la fragilidad de los colgajos de la mucosa nasal que se desgarran con sólo tomarlos con una pinza, y que hace imposible deslizarlos, estirarlos y cualquiera otra manipulación necesaria para practicar una autoplastía. Por último, la estrechez del campo operatorio limitado por paredes rígidas como son las de la trepanación hecha en el hueso, la profundidad a la que se va encontrar dicha mucosa; la vascularización de la región y la circunstancia de que unas cuantas gotas basten para inundar constantemente de sangre el campo operatorio, lo que impide la visibilidad de algunas maniobras y hace que la intervención se alargue de un modo extraordinario. Sin embargo todas estas dificultades pueden ser dominadas con una buena preparación del paciente, y en cuanto a las derivadas de las condiciones anatómicas es posible vencerlas con mayor facilidad mediante una técnica operatoria simplificada. La técnica que ahora tengo el honor de presentar a esta Honorable Asamblea es en mi concepto una técnica fácil, accesible a cualquier cirujano; y segura con un porcentage de éxitos no menor de un 95 por ciento. Su tiempo de ejecución varía entre 25 y 30 minutos y las dificultades eventuales que se pudieran presentar se compensan grandemente con las ventajas de la intervención.

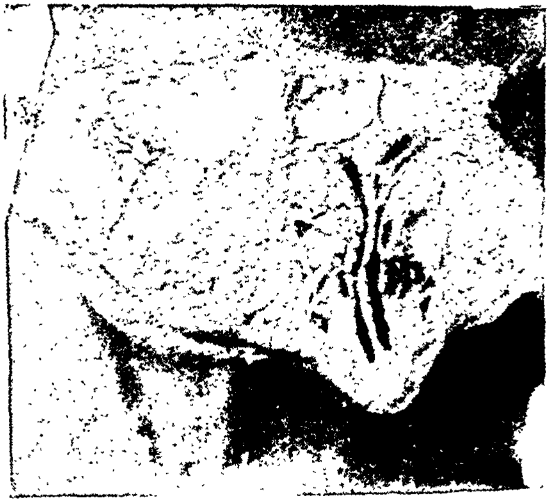


Fig. 2. Muestra pared ósea entre-sacro lagrimal y mucosa nasal.

PROCEDIMIENTO PERSONAL

Instrumental. — Como instrumentos generales uso los siguientes: bisturí fino, tijeras romas, curvas y finas, pinzas

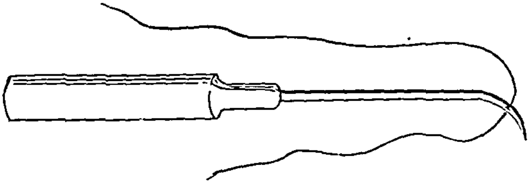


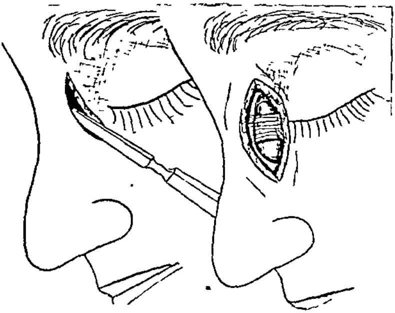
Fig. 3. Aguja larga de diseño especial con ojo y curvatura hacia la punta.

acodades para curaciones nasales, separador de Müller, dilatador de puntos lagrimales, sonda Bowman Núm. 1, martillo, cuatro pinzas hemostáticas finas, aguja de sutura mediana, portagujas, aguja de Reverdin chica y recta, un espejo de Klaar. Como especiales empleo: dos pinzas fuertes para curaciones dentales, cincel fino recto, o acodado en balloneta para mastoides, palanca pequeña, fuerte y acodada en ángulo casi recto, agujas largas, montadas en un mango, de diseño especial con ojo y curvatura hacia la punta (Fig. 3).

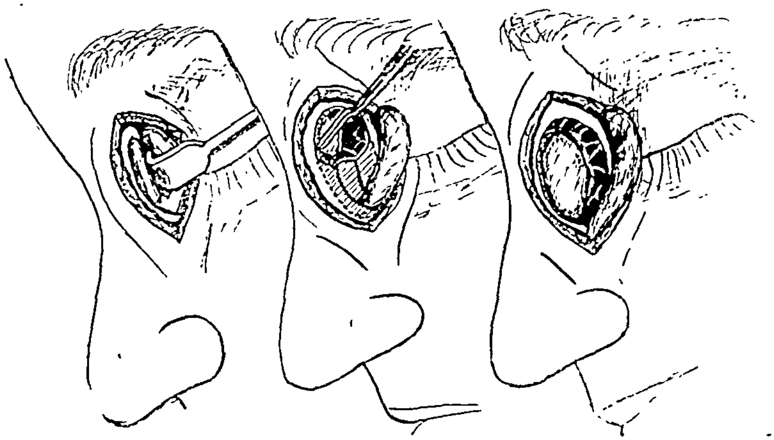
Anestesia. — Anestesia local por infiltración, con una solución de novocaína adrenalina al 2 por ciento, o de percaína al 2 por 1.000, completándola por medio de un tapón de algodón impregnado en solución de cocaína al 5 por ciento con adrenalina, introducido en la parte alta de la nariz.

Manual Operatorio.—Incisión clásica, la misma que se usa para la extirpación del saco lagrimal y para la dacriocistorrinostomía de Dupuy Dutemps (Fig. 4).

Segundo tiempo: Disección de la piel y partes blandas—por medio de las tijeras romas hasta descubrir el tendón del orbicular de los párpados, después aplicación del separador de Müller, haciendo en seguida la hemostasis y dejando claramente visibles la porción del ligamento ancho de los párpados que se inserta al borde orbitario, el tendón del



Figs. 4 y 5. Incisión clásica para extirpación sacrolagrimal.



Figs. 6, 7 y 8. 3° tiempo. 4° tiempo.

orbicular y el borde de la órbita (Fig. 5).

Tercer tiempo: Sección del tendón y de la fascia, disecando cuidadosamente la pared interna del saco, hasta dejar al descubierto toda la canaladura del ungüis y la cresta lagrimal posterior (Fig. 6).

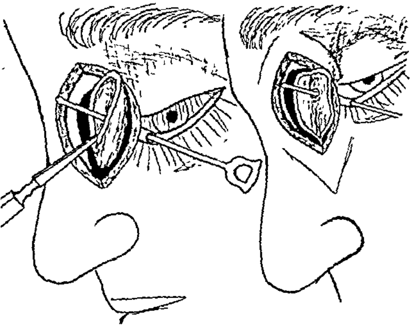
Cuarto tiempo: Sección por medio del cincel y el martillo de la porción anterior de la pared, aplicando el filo del instrumento dos o tres milímetros por detrás de la cresta lagrimal anterior y perpendicular a la superficie del hueso (Fig. 7).

Bastan generalmente dos o tres golpes de martillo para que se desprenda el borde de la cuña del hueso perteneciente a la apófisis ascendente del maxilar superior, y que se insinúa dentro del etmoides. Para extraer estas esquirlas y algunas otras pequeñas que a veces se forman durante la sección, se hace uso de una palanca acodada, pequeña y fuerte, no habiendo encontrada otra mejor que un limpiador del sarro de los que usan los dentistas, cuya punta fina y a la vez cortante, sirve para enganchar los fragmentos y disecar las adherencias que pudieran conservar con las partes blandas. Se continúa la trepanación sobre la porción eburnea de la pared por golpes finos del cincel ampliándola hasta tres o cuatro milímetros por delante de la cresta lagrimal anterior.

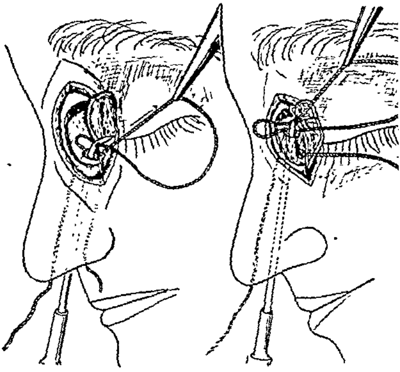
Extraídas las esquirlas de la porción dura, se elimina por completo el cincel y el martillo. En seguida con la pinza dental se arrancan las delicadas trabéculas huesosas que forman las paredes y tabiques de las celdillas etmoidales. La trepanación terminada debe tener una forma oval, y sus dimenciones han de ser dos centímetros de largo por uno y medio de ancho. La mucosa nasal debe aparecer en el fondo de la trepanación absolutamente intacta y tensa, como si se tratara de la tela restirada en un marco oval (Fig. 8).

Quinto tiempo: Se retira el separador de Müller y se introduce una sonda por el punto lagrimal inferior hasta la cavidad del saco; hecho lo cual se aplica nuevamente el separador de Müller.

De esta manera se tiene una referencia segura para hacer la sección del saco, principalmente en aquellos casos en que es pequeño o retraído, y aún en aquellos casos en que una defectuosa extirpación del órgano ha regenerado un saco rudimentario, pero lo suficiente para formar dos pequeños colgajos susceptibles de suturarse a la mucosa nasal. En seguida se divide longitudinalmente el saco para



Figs. 9 y 10. 5° tiempo.



Figs 11 y 12. 6° tiempo.

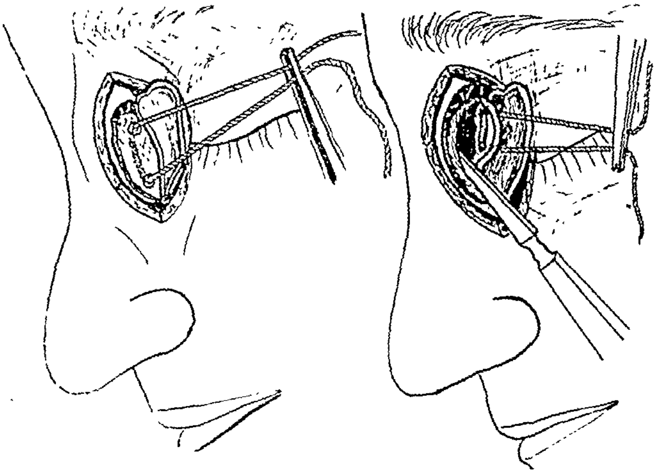
lo cual se hace en sus paredes y sobre la sonda, un ojal con la punta del cuchillo, y se continúa la sección por medio éste, o con unas tijeras, haciendo dos colgajos cuadrangulares uno anterior más corto, constituído por la pared anterior y el tendón del orbicular, y uno posterior, más largo, que comprende la pared interna y posterior (Figs. 9 y 10).

Sexto tiempo: Es el más importante, o sea la sutura, para lo cual se introduce por la nariz la aguja especial diseñada por mí, enhebrada con un hilo de catgut 00 y como de 20 centímetros de largo, la punta del instrumento debe mirar hacia atrás, y la convexidad debe guiarse por debajo del dorso de la nariz.

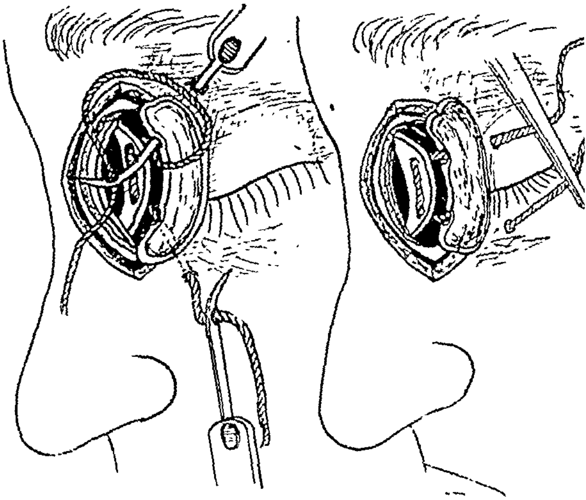
Cuando la aguja ha llegado hasta la trepanación, lo que se conoce en que la mucosa se levanta con los movimientos del instrumento, es fácil orientarla de manera a que la punta venga a salir atravesando la mucosa hacia la unión del tercio medio con el inferior del eje mayor del óvalo de la trepanación, se toma entonces con una pinza fina el cabo del hilo que está por la concavidad de la aguja y con todo cuidado se jala llevándolo al exterior del campo operatorio (Fig. 11).

En seguida se retira un poco la aguja hacia la cavidad nasal, se vuelve a perforar la mucosa en la unión del tercio medio con el superior del citado eje, arriba de la primera perforación y se jala nuevamente el asa de catgut, comprendida dentro de la curvatura de la aguja, se desensarta y se lleva el hilo afuera de la herida operatoria, evitando hacer tracción y cualquiera brusquedad, que pudiera provocar la desgarradura de la mucosa (Fig. 12). La aguja ya desenhebrada se retira completamente de la nariz y los cabos de la punta en U que se ha ejecutado, y que salen hacia afuèra del campo operatorio, se toman con una pinza (Fig. 13).

Séptimo tiempo: Una vez practicada la sutura en U sobre la mucosa nasal se jalan cuidadosamente los hilos para insinuarla hacia la perforación y en seguida, por medio del cuchillo de Graefe, se talla a expensas de ella un colgajo único, en forma de C del tamaño menor que el de la trepanación y pediculado hacia el borde posterior de ésta, para lo cual se pasa *casi rasando* el filo del cuchillo por los b[illegible] es [illegible] rior, a[illegible] e inferior, de[illegible] sea tenerse cuida



Figs. 13 y 14. 7° tiempo.



Figs. 15 y 16. 8° tiempo.

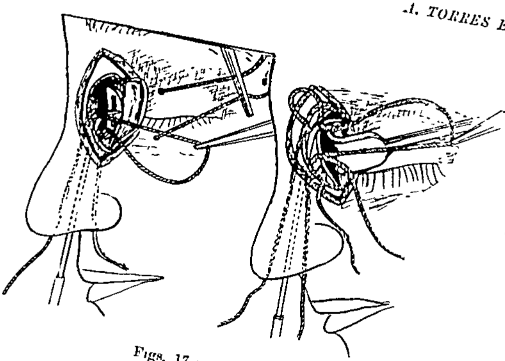
bra de no dividir los hilos de la puntada en U, ni tirar demasiado de ellos para no desgarrar el colgajo, sino hacer una tracción moderada a fin de que el colgajo se recline dentro de la trepanación a medida que se va disecando (Fig. 14)

Octavo tiempo: Se retira enseguida el separador de Müller y se introduce una aguja de Reverdin recta y pequeña, estando cerrada y desprovista de hilo, por un punto situado como un centímetro arriba y fuera del extremo superior de la incisión, atravesando la porción interna del párpado superior y los tejidos blandos subyacentes, se dirige la punta del instrumento hacia el borde libre del colgajo posterior del saco lagrimal, procurando pasar entre la mucosa y la túnica músculo fibrosa de la pared.

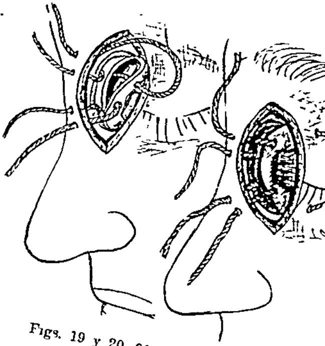
Una vez que la aguja se encuentra dentro de la trepanación y cerca del borde del colgajo de la mucosa nasal se abre y se engancha en ella el cabo superior de la puntada en U (Fig. 15).

Después de haber anhebrado la aguja se retira por su camino, con lo que se hace salir a través de la piel el hilo que sucesivamente ha tomado el colgajo de la mucosa nasal, el colgajo posterior del saco, tejido celular subcutáneo y la piel del párpado superior. Se repite nuevamente la operación haciendo pasar la aguja a través del párpado inferior en un punto simétrico al del párpado superior. Terminando este tiempo quedarán los dos cabos de la puntada en U fuera de la piel, el borde del colgajo de la mucosa nasal afrontado íntimamente al borde del colgajo posterior del saco, y revestida de mucosa la parte anfractuosa y más gruesa de la trepanación, que corresponde a las celdillas etmoidales. Los cabos de la puntada en U se toman con una pinza, y como han pasado por un espesor considerable de tejidos mantiene perfectamente coaptados los colgajos sin necesidad de ninguna otra maniobra (Fig. 16).

Noveno tiempo: Nuevamente se introduce por la nariz la aguja acordada especial, provista de su hilo, y se dirije hacia la trepanación, cerciorándose de que la punta y la concavidad del instrumento miren hacia atrás. En seguida se vascula la aguja hacia el dorso de la nariz con lo cual se pierde de vista la punta del instrumento y se atraviesa la mucosa nasal como a cuatro milímetros antes del borde de la trepanación, en la unión del tercio medio con el superior del borde anterior de ésta: La aguja al atravesar la mucosa pasa entre



Figs. 17 y 18. 9° tiempo.



Figs. 19 y 20 9° tiempo.

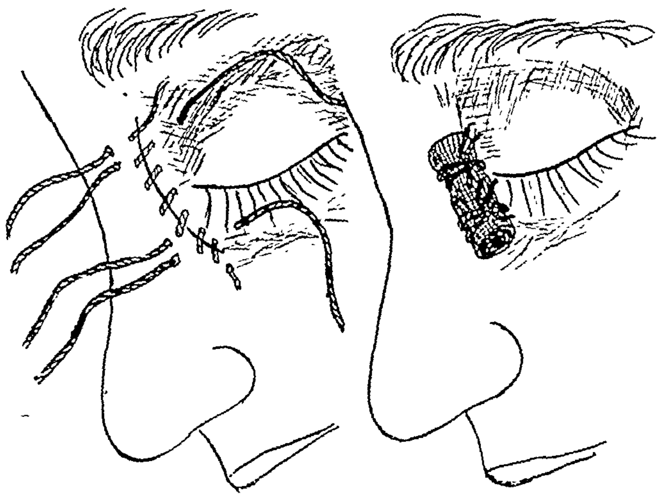
ella y la pared ósea, y cuando nuevamente han aparecido la punta y la curvatura de aquélla dentro de la luz de la trepanación, se toma con una pinza uno de los cabos del hilo, y se lleva al exterior. En seguida se hace retroceder la aguja por su camino, y ya libre dentro de la cavidad nasal se insinúa nuevamente dentro de la trepanación para desensartarla. El cabo del hilo que había quedado en ella se saca el exterior y se sujeta junto con el anterior por medio de una pinza (Fig. 17).

Se retira la aguja y se repite nuevamente la misma operación perforando la mucosa hacia la unión del tercio medio con el inferior del borde anterior de la trepanación. Terminada esta segunda maniobra queda al borde anterior de la mucosa nasal atravesada por dos hilos, de cuyos cabos una sale entre la mucosa y la pared huesosa y el otro viene de la cavidad nasal a través de la trepanación (Fig. 18). Los cabos profundos se ensartan por medio de una aguja de sutura fina y se hacen pasar uno primero y otro después por el borde del colgajo anterior del saco, el tendón del orbicular y los demás tejidos blandos subyacentes a la piel, después de lo cual se reflejan formando una puntada en U para venir atravesar la piel de atrás hacia adelante a un centímetro adelante y arriba del extremo superior de la incisión, en un punto simétrico al que atraviesa el párpado. Terminada esta maniobra en cada uno de los hilos basta jalarlos con cuidado para ver cómo aproximan el borde anterior del saco hacia el borde anterior de la mucosa nasal en un plano profundo, y el tendón, y los demás tejidos en un plano más superficial (Figs. 19 y 20).

Décimo tiempo: Sutura de la herida operatoria. Terminando el tiempo anterior se unen los labios de la incisión por medio de un surjete hecho con catgut (Fig. 21).

Undécimo tiempo: Anudamiento de los cabos de las puntadas en U. Terminada la sutura se atan los cabos de las puntadas en U que han aproximado los colgajos del saco y la mucosa nasal, sobre un rollo de gasa y se cubre la herida con un apósito y vendaje ligeramente compresivo (Fig. 22).

En la técnica clásica de Dupuy Dutemps y en las demás que derivan de ella, se hace la sutura de los colgajos del saco y los de la mucosa nasal por vía externa, en la profundidad del campo operatorio.

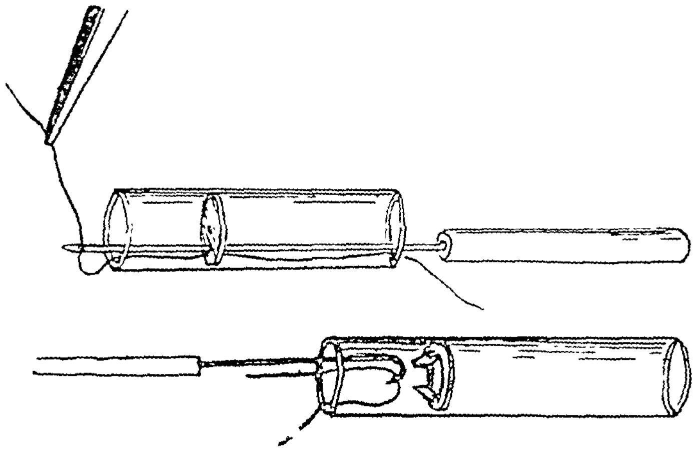


Figs. 21 y 22. 10° tiempo.

A pesar de las agujas especiales ideadas para el objeto, la maniobra resulta muy difícil, a veces casi imposible, y es frecuente el caso que después de una penosa labor que puede prolongarse por una y hasta dos horas el resultado sea que no se hay podido colocar ninguno de los uatro puntos separados que deben fijar os colgajos del saco a la mucosa nasal, porque ésta se ha desgarrado durante las manipulaciones, y sobre todo en el momento de correr y anudar los hilos de las suturas.

Todo cirujano que ha intentado hacer una dacriocistorrinostomía clásica queda desalentado por la enorme dificultad de practicar dicha sutura; y casi de una manera exclusiva a esta dificultad se debe, que después de tantos años de perseguir con ahinco la idea de realizar la operación, ésta no haya podido entrar en la práctica corriente.

Por muchos años busqué y ensayé encontrar la forma de hacer la sutura mucomucosa de manera fácil y segura. Las maniobras que hace una bordadora, cuando a través de la tela restirada en un bastidor pasa la aguja de abajo hacia arriba y de arriba hacia abajo para ejecutar las labores de su costura, me die-



Figs. 23 y 24. 1 experiencia. 2 experiencia.

ron una luz para hacer la sutura en la dacriocistorrinostomía sin necesidad de manipular la mucosa nasal, sin necesidad de correr hilos, sin hacer nudos en el estrecho y profundo campo operatorio, a fin de hacer que las maniobras de sutura fueran lo más fácil, lo más seguro y lo más rápido de ejecutar.

La técnica que he descrito satisface estas condiciones, porque la aguja larga y casi recta que lleva el hilo ensartado cerca de la punta se introduce por la nariz hasta perforar la mucosa nasal, tensa como en un marco en el fondo de la trepanación de la pared nasal. La aguja entonces atraviesa la mucosa de una manera semejante que la aguja de la bordadora atraviesa la tela colocada en el bastidor. Los hilos que hacen la puntada en U tomando los colgajos de la mucosa nasal los aproximan con suavidad a los colgajos del saco lagrimal sin necesidad de tocarlos con ningún instrumento que los pudieran desgarrar. Después dichos hilos atraviesan todo el espesor de las partes blandas y se anudan como una simple precaución fuera de la piel, porque los colgajos ya han quedado definitivamente y correctamente aproximados, con lo cual se evita la necesidad de correr los hilos y hacer las suturas en el fondo de la herida, como se hace en los otros procedimientos.

Dos simples experiencias que ilustro por cinco figuras bastarán para demostrar claramente la manera de hacer la sutura mucomucosa en los procedimientos clásicos y en el que acabo de describir.

Prepárense dos tubos pequeños de vidrio, de poco más de 1 c.c. de luz por 5 o 6 de largo y péguese un pequeño diafragma de papel a 2 cms. de uno de sus orificios.

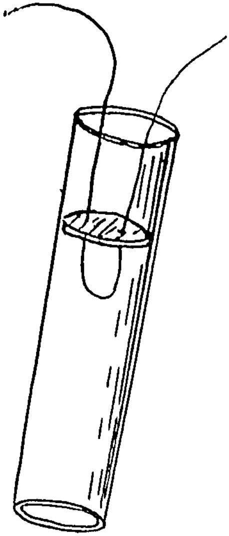


Fig. 25 2ª experiencia.

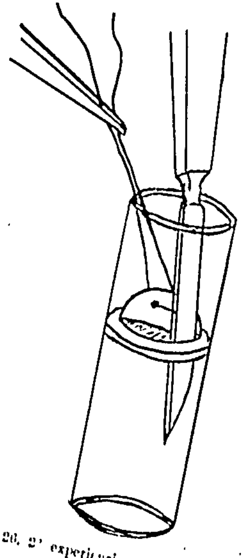


Fig. 26, 2ª experiencia.

Este orificio será el representativo de la herida operatoria; la distancia entre él y el diafragma, la profundidad del campo operatorio; el diafragma, la mucosa nasal, y la parte del tubo comprendida abajo del diafragma, la cavidad nasal.

Primera experiencia: Con uno de estos pequeños dispositivos inténtese hacer dos suturas en los colgajos previamente tallados en el diafragma de papel, según la técnica clásica de la dacriocistorrinostomía, y se verá que es casi imposible la ejecución correcta de la maniobra, aunque se empleen las agujas más apropiadas (Fig. 23).

Segunda experiencia: Con otro tubo como el anterior y una aguja con ojo cerca de la punta, semejante a la que he mandado construír para la intervención, hágase pasar un hilo de abajo hacia arriba através del diafragma de papel, retírese la aguja un poco y vuélvase a repetir la operación, con lo cual se habrá hecho una puntada en U (Figs. 24 y 25).

Después con un cuchillo fino hágase una sección curva en el diafragma y se habrá obtenido un colgajo sujeto por la puntada en U (Fig. 26).

El resultado de estas experiencias es demostrar que es posible obtener una puntada en U en el colgajo de papel sin que para esto haya sido necesario manipularlo en lo absoluto con ningún instrumento, que es precisamente lo que se hace en el colgajo de mucosa nasal en la técnica operatoria que acabo de describir.

Para terminar debo manifestar que con esta manera de hacer la sutura mucomucosa no sólo se facilita su ejecución, sino que se logra hacerla perfecta en casi todos los casos. Los contratiempos pueden venir de que la mucosa se desgarre antes de practicar la sutura, pero aún en estos casos es posible practicarla con más o menos facilidad y seguridad.

Los resultados operatorios en esta operación, tal vez más que en ninguna otra dependen de la perfección con que haya sido ejecutada, y la mejor demostración de que es fácil y segura es el gran número de casos en que puede efectuarse pagada a la técnica. No es por lo tanto de extrañar el gran porcentaje de éxitos que he señalado al principio de este trabajo.

Los fracasos no dependen en gran parte de que la sutura mucomucosa haya sido incompleta, sino de las condiciones de las vías lagrimales superiores y de la formación de queloides en la cicatriz operatoria.

En efecto, la desviación de los puntos lagrimales, el desgarro o la desbridación que hayan sufrido estos, así como las estenosis de los canalículos lagrimales, son los motivos más frecuentes de que la operación fracase.

El fracaso debido a la queloides puede evitarse aplicando rayos X cuando ésta comienza a formarse, o bien reoperando al paciente si ésta se ha formado y haciendo días después la irradiación conveniente.

SUMARIO

El tratamiento quirúrgico por excelencia de la dacriocistitis es la dacriocistorrinostomía externa.

La dacriocistorrinostomía no se ha generalizado debido a las dificultades de hacer una correcta sutura mucomucosa.

La sutura mucomucosa por maniobras endonasales combinadas con las externas es fácil, segura, y permite obtener éxitos constantes.

RÉSUMÉ

L'opération externe de dacryocystorrhinostomie est le traitement chirurgical par excellence de la dacryocystite. L'opération n'est pas devenue populaire vu les difficultés qu'on recontre pour fermer l'incision avec exactitude au moyen d'une suture muco-muqueuse. Cette su-

ture, faite par la voie intranasale est pratique, sûre et donne de bons résultats.

Выводы

Автор считает, что найлучшим лечением дакриоцистита является наружная операция — дакриоцисториностомия.

Эта операция не получила широкого распространения из-за трудностей, встречаемых при закрытии разреза швами, которые должны соединить края слизистой оболочки.

Практикуется шов, относительно безопасный и дающий хорошие результаты, который накладывается эндоназально, но сочетается с наружным подходом.

(Continued from page 133)

A priceless gift that all mankind may share.

Comments: Dr. Wolcott thinks 'anaesthesia by inhalation' is preferable and I concur Weir Mitchell Cameron Forbes, who belongs to the Jackson tribe, which resents very much the recognition of Morton, lighted on the word 'discovery' in the quotation from Morton, and I think that it would be well to avoid it, although not on the grounds which he raised. The real scientific discovery is that of the anaesthetic properties of a volatile agent and this does not belong to any of the claimants—Long, Wells, Jackson or Morton Morton did more than anyone else to demonstrate the applicability of this discovery to surgery—to get rid of this vulnerable point in the inscription and at the same time retain the quotation from Morton the forms II, III, or IV are suggested. As stated, if it is not necessary to insert a quotation from Morton at all, I prefer the simple statement marked I.

Perhaps you can find a quotation from Morton which will remove the difficulties.

The quotation which Morton's daughter, Mrs. Otis, wishes used seems to me impossible for the tablet. It is "I have a work to do in this world The time will come when I will (shall) do away with pain"

No scientific man would indulge in such a boast beforehand. The quotation which I substituted for this I found in Rice's book "Trials of a Public Benefactor" P 301.

Perhaps you can find something better than either in the rather rare Morton literature, which he got out in circular and pamphlet form, soon after Oct 14, 1846—

As regards the words 'safe, certain and complete' these, as you know, were employed by the older Henry J. Pigdon to indicate what Morton did and his predecessors did not. They have become a kind of formula, at least in Boston, and I think it well to retain them, as I agree that they describe pretty accurately the points characterizing Morton's accomplishment as compared with Long and Wells, although the main thing is that Morton's achievement became known to the world and started the new era

Very sincerely yours,
William H. Welch.

My Dear Garrison,
Baltimore, August 1, 1920.

. . . I have been more interested in Morton than in any other candidate of the medical group [to elect him in the Hall of Fame], and he would doubtless be elected, if the electors were not bombarded with documents, circulars, letters, setting forth the claims by Long and Jackson If the mind of the profession is confused about the rival claimants, how much more the lay mind! I wish there could be more of a consensus of opinion in the profession and, as obviously only one name can be chosen for the Hall of Fame, agreement should be reached to press that of Morton . . . Billings never would vote for Morton. He said Collins Warren deserved the credit . . .

Yours sincerely,
William H. Welch.

From W. H. Welch to James J. Walsh.

My dear Walsh·
December 19, 1927.

. The Leipzig Institute is, I think, the only real institute of the history of medicine worthy of the name in the world. My experience confirmed by feeling that a mere "Lehrstuhl," a mere professorship of medical history, is not enough. It needs, just as departments of anatomy, physiology, pathology, etc., its own laboratory or institute with a staff of assistants, equipment in the form of a good working library, etc. There should be on the staff palaeographers, those who can read medieval mss., etc., etc.—all this requires a good endowment.

It is my ambition, if the funds can be secured, to create such an institute in Baltimore . . .

Yours cordially,
William H. Welch.

Welch was a prime mover, a leader and a true humanitarian. His ability and achievements were recognized by the medical profession the world over, and numerous honors and the highest positions in the medical world were conferred upon him. Such genial leaders and educators as Welch are rare. His name is an honor to his teachers [illegible] pupil his profession [illegible] mankind.

Editorials

Post-War International Coöperation

FROM all allied countries comes the call for international coöperation after the war. The emphasis with which this desire is proclaimed is in itself an admission that the international coöperation which existed before the war was insufficient. And since our international organizations of physicians and surgeons were among the leading pre-war experiments in such coöperation, it is well, perhaps that we examine our record and frankly face whatever faults we find therein. If we are to avoid the mistakes of the past in the peace to come, we must learn first to recognize those mistakes clearly and fearlessly.

The realignment of the fascist countries is, we well know, a stupendous task which must be undertaken when the war ends. A long period of training in brutality and contempt for the individual human being must be overcome and the new foundations laid for education for humanity. That renaissance is perhaps the greatest of all our postwar problems, and it is confronting us because the great democracies have been in the past so slow to understand that only as they are able to prevent the rise of barbaric concepts ("Weltanschauungen") among their neighbors can they continue long to live according to their own humanitarian ideals. The era of appeasement politics was characterized by the neglect of this essential truth.

The responsibility for the neglect, the short-sightedness, however, does not rest solely with the political leaders, the diplomats and the international business men, as some of us would like to think. The responsibility rests also upon international organizations of men of good will. The fact is that they also have failed in the past.

International medical organizations have been as guilty of appeasement as the statesmen who directed the policies of nations. Too often the leaders—and the rank and file as well—in these organizations have pleaded a privileged position above the struggles of the political arena. Our societies seek pure science, they have said; we have nothing to do with politics. Truth knows no nation, no system of government.

We can see somewhat clearly now that the policy of *laissez faire, laissez mourir* which grew out of our aloofness may have been a contributing cause of today's tragedy.

True, the object of an international medical society is the furtherance of science. But looking back one may question how truly science was served when international gatherings of men of medicine took place in the cities of countries whose governments were, even as the congresses met, notorious for concentration camps, racial persecution, murder and oppression.

Better never to have held those congresses at all than to have, by their holding, tacitly condoned a political philosophy fundamentally destructive of truth and science. For it is well to admit that the scientific profit which an individual participant derives from attendance at a modern international congress is often not at all in proportion to the pomp and splendor surrounding such a gathering.

Which is not to say that the international congresses of medical men have outlived their usefulness. But let us recognize the truth that their mission has changed. They could, if their leaders would assume the responsibility they cannot escape, become important and influential channels for humanitarian education.

In most countries the medical profession is a free profession. This freedom implies an intellectual and material independence which gives to the physician a considerable measure of influence in his community. In his responsibility for the physical and mental health of the community is implied a responsibility also for helping to preserve for all the freedom he himself prizes. Obviously, the noble task of the healer does not end with his duty to himself and his individual patient. It must and should include the well-being of the nation of which he is a member, of the world of which that nation is a part. The effectiveness of our profession can and should transcend national boundaries. The spirit of freedom and healing, like science, is universal.

No medical man has greater power and opportunity to express this spirit than the surgeon. The nature of his work is such that people entrust their very lives to him. So great and unparalleled is the trust that we rightly castigate with utmost severity those who misuse it. But we have been, in the past, too lenient with the betrayal in our own profession and elsewhere of the spirit of freedom and justice and humanity in the realm of social and political relations.

Not one of the international congresses of medical men—and no medical society can be unreservedly absolved of this reproach—openly and unequivocally castigated the crimes committed against mankind in the ten years before the war. Not a single medical society, however much its statutes might emphasize the moral and ethical principles of our profession, excluded from membership men who directly or indirectly supported the barbarities of fascist governments.

We must bear those truths in mind as we face the future. Never before was there greater need and greater opportunity in those free associations of men of all nations committed to the helping and the healing of mankind. Let us resolve, however, that the mistakes of the past shall not be repeated, that we shall, as we go forward, assume the moral responsibility as leaders which the world puts upon our shoulders and which we cannot, with honor, avoid.

Rudolph Nissen

Antireticular Cytotoxic Serum

IN the American Review of Soviet Medicine (December, 1943) it is pointed out that Prof. Alexander A. Bogomolets and his staff have been carrying on research with antireticular cytotoxic serum at the Institute of Experimental Biology and Pathology in Kiev for a number of [illegible] ([illegible] une 23, 1941, the day fo [illegible] attack on Soviet R announced perfection of the serum, which has been successfully used in thousands of patients suffering from pathologic conditions.

Culmination of years of experimental effort was reached on July 12-14, 1942, at the conference held in Ufa under the auspices of the Institute of Clinical Physiology of the Academy of Sciences of the Ukrainian S.S.R., at which the assembled representatives recommended wide use of antireticular cytotoxic serum for therapeutic use in military hospitals and civilian institutions. Its significance for military use lies in the fact that it shortens the hospitalization period.

Experiments have shown that antireticular cytotoxic serum, if used in small doses, influences the physiologic system of connective tissue and stimulates the mesenchymal cells, in consequence of which the trophic and protective functions of this physiologic system assume paramount importance in diseases characterized by weakening or inhibition of systemic functions, such as hypertension and cancer. Large doses are of no value because they tend to inhibit the physiologic connective tissue system. Experiments in human longevity at the Institute, where a special clinic was established to treat patients over 50, were curtailed by the war.

Various tests have been used to determine reactivity of the physiologic system of the connective tissue: (1) dermal test with trypan-blue; (2) morphology of the blood; (3) sedimentation rate of erythrocytes; (4) titer of complement, opsonic index and phagocytic activity of the leukocytes; (5) dermal test with antireticular cytotoxic serum.

Bogomolets has stated the belief that hypertension is frequently the result of an affection of the normal permeability of the hemato-parenchymal barrier in the kidneys. Treatment has permanently lowered blood pressure to normal, if given in early cases before irreversible sclerotic changes take place.

In carcinogenetic tumors, the fibroblasts and microphages of the tumor tissue form a line of demarcation around the cancerous foci and strangle the carcinogenetic elements, thus hindering the infiltrating growth of the tumor. Antireticular cytotoxic serum stimulates the protective action of the connective tissue. Dr. Neuman's experiments on mice showed that serum treatment led to the disappearance of large carcinogenous tumors and decreased cancer metastases to the lungs.

Dr. Oleg Bogomolets succeeded in accelerating fracture healing and growth of normal bone callosity with small doses of antireticular cytotoxic serum. Use of large doses inhibited osteoblastic growth and caused several months' delay in satisfactory union of fractures.

Administration of antireticular cytotoxic serum in 2500 clinical cases established its efficacy in frostbite and wounds, infectious diseases, diseases of the nervous system and diseases connected with disordered trophic tissue function.

Bone fractures which heal slowly, infected wounds of a slow-healing, sluggishly granulating disposition, purulent infections in the first stages, suppurating inflamed cavities and tissues, frostbite, second and third degree burns, and infected eye injuries respond to Bogomolets' therapy.

Spotted typhus, puerperal and gynecologic sepsis, rheumatism, abscesses of the lungs and pneumonia, tonsillitis, psychoses, traumatic and infectious diseases of the central and peripheral nervous systems, duodenal and gastric ulcers, ozena and eczema are stated to have been favorably influenced.

Use of serum is contraindicated in myocarditis.

Serum for use in humans is prepared from the cells of the spleen and bone marrow, taken from a fresh human cadaver, with which horses have been inoculated. If necessary, however, an antigen obtained from frozen organs may be used. Dosages in adults range from 0.1 to 0.3 cc. of the serum, determined by the patient's weight and condition, diluted in sterile physiologic saline (1:10) sealed in ampules and stored in a refrigerator two days before injection, either intravenous or subcutaneous.

Bogomolets has made an important and far-reaching contribution to serotherapy with the introduction of antireticular cytotoxic serum. Further publications on this subject will be eagerly awaited. At any rate a vista offering great possibilities for research has been opened by this Russian scientist. It undoubtedly will throw some light on hitherto obscure phenomena.

Max Thorek

IN MEMORIAM

DR. WALTER TAYLOR SHEETS

Dr. Walter Taylor Sheets, F.I.C.S., Salt Lake City, Utah, died in Washington, D. C., in January, 1944.

Dr. Sheets was elected to Fellowship from St. Petersburg, Florida, Mar. 28, 1942, where he was associated as Medical Officer of the Veterans Administration. On June 24, 1942, he was transferred to Salt Lake City, Utah.

An outstanding orthopedic surgeon, he was born in Salt Lake City on Nov. 23, 1902. He received his A.B. degree from the University of Utah in 1924 and his M.D. from the College of Physicians and Surgeons of Columbia University in 1926.

Positions held by Dr. Sheets include: Clinical Instructor in Orthopedic Surgery at the Post-Graduate Hospital, 1930, Chief Surgeon in the U. S. Veterans Hospital, 1932-1940 and Chief Orthopedic Surgeon, U. S. Veterans Hospital, 1940 until his death. Dr. Sheets served as Instructor in Orthopedics in the U. S. Veterans Hospitals, 1932-1944.

With the death of Dr. Sheets the College has lost a devoted fellow.

CHAPTER ACTIVITIES

BOLIVIAN CHAPTER FORMED

THE Bolivian Chapter of the International College of Surgeons was formally inaugurated at an imposing ceremony held in the *Salón de Actos Publicos* of the Universidad Mayor de San Andres at 6:30 P.M. on January 13, 1944.

The inaugural ceremony was a brilliant success. More than a hundred distinguished members of the medical profession, diplomatic authorities and students were in attendance. Guests of honor on this occasion were His Excellency Pierre de Boal, United States Ambassador to Bolivia, Dr. Ernesto Navarre, Vice-Rector of the University and Dr. Héctor Aliaga Suárez, Chief of the Department of Public Health.

The following officers of the Bolivian Chapter were elected:

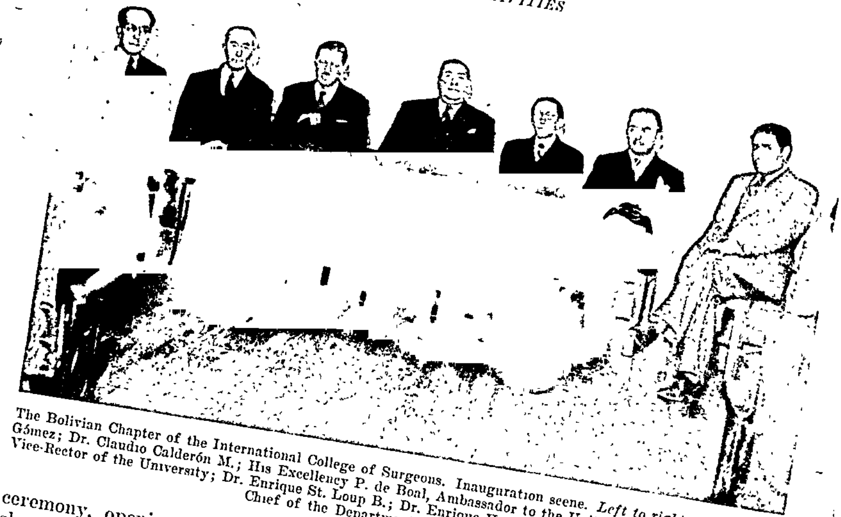
President, Dr. Enrique St. Loup B.
Vice-President, Dr. Abelardo Ibánez Benavente
Treasurer, Dr. Claudio Calderón Mendoza
Secretary, Dr. Valentín Gómez
National Regents, Dr. Ernesto Navarre
Dr. Enrique Hertzog G.

Fellow Founders of the Bolivian Chapter include:

Anastasio Paravicini
Julio C. Fortún
Walter Galindo
Serafín Ferreira
José Antezana E.
Teodoro von Borries R.
Eduardo Campero Q.
René Coronel Carvallo
Ricardo Cordoba Coré
Genaro Mariaca
Florentino Mejía G.
Roberto Valda Arana

Dr. Ernesto Navarre, Vice-Rector of the University, presided at the inaugural

Dr. Enrique St. Loup B.
President Bolivian Chapter.



The Bolivian Chapter of the International College of Surgeons. Inauguration scene. *Left to right:* Dr. Valentin Gómez; Dr. Claudio Calderón M.; His Excellency P. de Boal, Ambassador to the United States; Dr. E. Navarre, Vice-Rector of the University; Dr. Enrique St. Loup B.; Dr. Enrique Hertzog G; and Dr. Héctor Aliaga Suárez, Chief of the Department of Public Health.

ceremony, opening the session with a short address welcoming the new organization and stressing its importance to the life of the University.

A splendid discourse was given by Dr. Enrique St. Loup B., in which he pointed out the importance of the formation of the Bolivian Chapter of the International College of Surgeons to Bolivian medicine, especially because of its international character and its stress on advancement of members through individual merit.

Dr. Enrique Hertzog G. spoke of the educational aims of the International College of Surgeons, correlating them with those of the University.

The program was terminated by the showing of a film by Dr. Enrique St. Loup B. depicting the steps in the operative procedure in a subtotal thyroidectomy.

The International College of Surgeons extends its warmest greetings and best wishes to the Bolivian Chapter.

CHINA

CHINESE CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS FOUNDED

THE report of this action was transmitted to the Central Office by Dr. J. Heng Liu, member of the Board of Trustees of the International College of Surgeons.

The following officers were elected:

National President (conc
Chairman of the Board of
iners)
Dr. Jar
National Vi
Chairman

Dr. Eugene Chan
National Executive Secretary (National Treasurer)
Dr. Gordon King
3 Members of the Board of Governors
Dr. Charles Chang
Dr. Henry I. Chen
Dr. M. L. Hu

Other Founder Fellows were:

Drs. Allen, A. Stewart
Chang Hsien-lin
Cunningham, Edison R.
Cunningham, Gladys S.
Ho, P. H.
Hsiao, Yuen-Ting
Liljestrand, S. H.
McClure, Robert B.
Nyi, P. C.
Tu, Kai-yuan
Wan, Fu-en
Wang, L. K.
Wang, P. W.
Wilford, E. C.
Yin, Yu-Chang
Yu, Horace
Yuan, Francis T.
Yuan, Shan-Cheng
Yuan, Stephen Y. K.

A Constitution and By-Laws wei adopted and at a meeting of the Inte national Board of Trustees a charte granted. The high standing of the su geons and their innate thirst for the ac vancement of democratic principles an the art and science of surgery are a guai antee that the Chinese Chapter of th International College of Surgeons wi carry the banner of the ideals of th College to its goal of achievement.

The first meeting of the scientifi activities of this chapter will be hel shortly and the proceedings reported i the *Journal*.

MEXICO

DELEGATES TO UNIVERSITY OF HAVANA, CUBA

VICE-President Manuel A. Manzanilla, F.I.C.S. (Hon.) and Francisco Fonseca García, F.I.C.S. (Hon.) have been appointed special delegates by the National University of Mexico on a mission of rapprochemen and university exchange in response t an invitation from the University c Havana, Cuba.

UNITED STATES

NINTH ASSEMBLY OF THE U. S. CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS

THE ninth Assembly of the U. S. Chapter of the International College of Surgeons will be held in Philadelphia on October 3-4-5, 1944.

The following committees have been appointed:

Program Committee

Dr. William Bates, Chm.
Dr. E. L. Eliason
Dr. Drury Hinton
Dr. Thomas A. Shallow
Dr. Desiderio Roman

Exhibit Committee

Dr. John R. Moore, Chm.
Dr. Desiderio A. Roman
Dr. C. L. Jackson, Jr.
Dr. Maxwell F. White (U. S. N.)

Publicity Committee

Dr. Moses Behrend, Chm.

Dr. Clifford B. Lull
Dr. Milton Bodenheimer
Dr. Wm. S. Bainbridge
Dr. Watson B. Morris

Hospital Clinics

Dr. Leonard D. Frescoln, Chm.
Dr. Charles B. Bailey
Dr. Albert P. Seltzer
Dr. Newlin F. Paxson
Dr. Rudolph Jaeger
Dr. Harold Lefkoe
Dr. Everett H. Dickinson (U. S. N.)

Registration Committee

Dr. Wm. L. Martin, Chm.
Dr. Chas. P. Bailey
Dr. Morris A. Weinstein
Dr. Bruce V. MacFadyen
Dr. Leonard Averett

Convocation Committee

Dr. Ernest F. Purcell, Chm.
Dr. Charles A. Steiner
Dr. Edmund C. Hessert

Entertainment Committee

Dr. John E. Loftus, Chm.
Dr. David B. Allman
Dr. Paul N. Jepson
Dr. Theodore C. Geary

Rehabilitation Committee

Dr. Harold D. Corbusier, Chm.
Dr. Wm. S. Bainbridge
Dr. Fred H. Albee
Dr. Custis L. Hall

Housing Committee

Dr. Benjamin H. Shuster, Chm.
Dr. Wm. C. Hunsicker, Jr.
Dr. Leopold Vaccaro

Motion Picture Committee

Dr. Wm. F. Whelan, Chm.
Dr. Moses Behrend
Dr. Thomas L. Doyle
Dr. Earl P. Craig
Dr. Elmer Hess
Dr. Rudolph Jaeger
Dr. John R. Moore

Those desiring to present papers please address the Chairman of the Program Committee, Dr. William Bates, 2029 Pine St., Philadelphia. Those wishing to participate in the Scientific Exhibits address Dr. John R. Moore, 3701 N. Broad St., Philadelphia. Those desirous of obtaining accommodations (This is important!) please communicate promptly with Dr. Benjamin H. Shuster, 1824 Pine St., Philadelphia, Chairman of the Housing Committee, while those who wish to exhibit motion pictures address Dr. Wm. F. Whelan, 2004 Walnut St., Philadelphia.

SCIENTIFIC PAPERS AND DISCUSSIONS

Anyone desirous of reading scientific papers or taking part in discussions at the Ninth Annual Assembly of the International College of Surgeons, to be held in Philadelphia, Oct. 3-5, 1944, please communicate with *Dr. William Bates, 2029 Pine St., Philadelphia, Pa.*

BOOK REVIEWS

Surgery of Modern Warfare. In six parts. Edited by Hamilton Bailey. Part I, pp. 1-152, 165 illus. Part II, pp. 153-328, 146 illus. E. & S. Livingstone, Edinburgh, 1944.

Part I

A PAGE of pointed "Aphorisms for the War Surgeon" introduces Part I of this six-part edition of a popular work on war surgery, compiled under the editorship of Hamilton Bailey with the aid of 76 contributors, two parts of which have now appeared.

Introduction of new technics and numerous revisions make this a valuable reference set. Pictorially, the work is enhanced by the edition of colored illustrations.

In Part I the authors treat (1) of the nature of war wounds and (2) of the general condition and resuscitation of the war wounded. A discussion of foreign bodies, classification of war wounds, the rôle of x-rays in localizing foreign bodies, bacteriology of wounds and chemotherapy comprise Section I. Section II is devoted to a presentation of compression phenomena (crush syndrome and "caisson" disease), shock therapy, and whole blood and plasma transfusions.

Part II

In Part II, frostbite, trench foot, burns, skin grafting, anesthesia of the wounded, general operative considerations (primary excision, débridement, closed plaster treatment), infections (tetanus, gas gangrene), delayed primary and secondary suture, methods of removing foreign bodies, surgical materials and dressings, and maggot therapy in infected wounds are discussed.

Envelope and saline bath treatment of burns, the latter the method of choice in the A. E. F., are fully described, indications and contraindications given, and technics presented.

The authors point out the practicability of the Oxford vaporizer in administering liquid anesthesia, particularly at sea, as well as its value in carrying out artificial respiration.

A special chapter is devoted to x-ray treatment of gas gangrene, not in extensive use in Great Britain. Further trial is recommended before it is practiced extensively.

Attention is called to the revival of antiseptics in wound healing, in disfavor since 1918, but this time in powder form.

Designed to be of assistance to the physician trained in general surgery, these two volumes are also of value to the surgical specialist. Issued in a convenient portable size and printed on paper of good quality in a legible type, nothing has been spared to make this edition of worth to the surgeon called upon to treat war injuries. All in all, the work is timely, an important contribution to contemporary surgical literature, edited by a master surgeon of seasoned experience, whose writings are well known, not only in Great Britain but also on the North American continent, and, in fact, in every part of the civilized world.

M. T.

War Wounds and Injuries. Edited by Rodney Maingot, E. G. Slesinger and Ernest Fletcher and published in collaboration with the Fellowship of Medicine. With a Foreword by Lord Horder. Ed. 2. 550 pp. 35s. Edward Arnold and Co., London, 1943.

THIS useful and comprehensive work, well supplied with bibliographical material, will be a valuable guide to the medical officer in the treatment of war wounds and injuries.

The full, concise treatment of shock, emphasizing the necessity for control of initial shock before performance of major surgery, is followed by a section on burns which describes the use of saline baths, triple dyes and skin grafting.

Detailed descriptions are given of peripheral nerve injuries, chest injuries and their complications, and abdominal injuries. Conclusions stated in the latter instance are the result of a study of six hundred abdominal injuries from this war.

Sulfanilamide cream or sulfanilamide powder covered with Tulle gras is recommended in first aid treatment for facial burns. Facial injuries with fractures are discussed and various operations described. However, there is no mention of the mandibular clamp splint as a means of immobilization.

Joint injuries, compound fractures and amputations of extremities, furnish the subject matter of another chapter.

Other war injuries treated are tetanus, gas gangrene, anesthesia, eye, ear, nose and throat injuries. The latest information on indications and uses of sulfonamides brings this volume up to date. However, there is no mention of peripheral vascular diseases, frequently encountered in base hospitals.

Readable type and a convenient format add to the usability of this compendium of information gathered on war injuries by specialists.

M. T.

Man in Structure and Function. Fritz Kahn, M.D. Translator and Editor, George Rosen, M.D. Published in two volumes. Alfred A. Knopf, New York, 1943.

THIS translation of a book first published twenty years ago in Germany is written for the *layman*. The author's facile use of analogies from everyday experience make it one of the most easily comprehended books written to popularize scientific knowledge.

The material is logically presented in ten sections dealing with: (1) development of the individual; (2) skeletal framework of the body; (3) human musculature; (4) circulatory system; (5) respiratory system; (6) digestive system; (7) nutrition; (8) nervous system; (9) skin and sense organs; (10) sex.

Dr. Kahn begins with the atom, progresses through molecules, proteins, viruses and the living cell to the human body, descendant from the single-celled amoeba and drawing its vitality from the plants and bacteria nature has so lavishly provided. This human body Dr. Kahn presents as the center of a miniature universe, a universe whose atoms, molecules, cells and organs function as a harmonic whole

In his unique presentation Dr. Kahn borrows from many sciences: anatomy and physiology form the basis of a study of man which is enlivened by facts gleaned from the fields of physics, pathology, histology, ecology, psychology and anthropology.

Particularly noteworthy are the fine illustrations. Drawings, photographs and diagrams are superior to the usual sketches found in physiology and anatomy books.

Recommended not only to laymen, but to members of the medical profession as well.

M. T.

Surgical Clinics of North America. April, 1943. Vol. 43, No. 2. 318 pp. Cloth, $16. Paper, $12. Issued serially, every other month (6 consecutive bimonthly numbers). W. B. Saunders Co., Philadelphia, 1943.

THIS issue of the Surgical Clinics is devoted to War Surgery. Such subjects as Trends in War Surgery, Traumatic Shock, Indications for the Use of Blood and Blood Substitutes, Treatment of Infected Wounds, Surgical Management of Traumatic Lesions of the Arteries, Effects of Trauma on the Nervous System, Injuries of the Eyes and Eyelids, Fractures of the Spine, Surgical Treatment of Herniated Nucleus Pulposus, Wounds of the Thorax, Repair of Lacerated Nerves at the Wrist, Injuries of the Knee Joint, Use of the Smith-Petersen Nail in Treating Fractures of the Neck of the Femur, Traumatic Wounds of the Abdomen, Treatment of Burns, Traumatic Psychoneurosis Is Organic Injury, Fractures of Tibia and Fibula are well handled by competent authorities.

Five basic features in treatment of war wounds, time and shock elements, débridement, ample dressings and blood transfusions in aftercare, are discussed by John J. Moorehead.

Prevention, early diagnosis and treatment of shock due to hemorrhage and following burns are the subject of a chapter by Charles Child.

George Schaefer points out the indications for the use of blood plasma and blood substitutes in acute hemorrhage or primary or secondary shock or as a preventive measure. Schaefer believes the use of physiologic saline should be avoided.

Moore and Glenn recommend use of the Carrel-Dakin solution plus immobilization in infected wounds, and the sulfa drugs (sulfathiazole and sulfadiazine). They devote some space to gas gangrene and its treatment.

Traumatic lesions of the arteries are classified as injuries, spastic lesions, aneurysms and occlusive arterial diseases by Gerald Patt; who then indicates their proper treatment.

Immediate management of traumatic shock in cases of fracture of the skull, delayed intravertebral hemorrhage, laceration of brain, injuries of the spinal cord, fractures of the neck, myelomalacia ruptured intervertebral disks, epilepsy after vertebral trauma, postconcussion syndrome and functional disturbances is described by Lewis Stevenson.

Prevention of injuries to the eyes and eyelids is stressed by Kirby and Town.

The remaining chapters deal with various otl types of injuries. Spinal fusion in surgical treatme of herniated nucleus pulposis is recommended Alan Smith. Sonnenschein advises repair of lacerat nerves at the wrist with fine silk before thirty-s hours have elapsed. Kenneth Lewis describes the u of the Smith-Petersen nail in treating fractur Symptoms of psychoneurosis are given by Pard

Kurt Eichelbaum,

Clinical Diagnosis by Laboratory Examinatic John A. Kolmer, M.D., F.A.C.P., Professor Medicine, Temple University. 1239 pp., 75 fig 137 tables. $8. D. Appleton-Century, New Yo 1943.

THE author has contributed an outstanding op of inestimable value to every member of t profession and students. Its pages are reple with instructive, authoritative and indispensable i formation. No one can be a successful counselor matters of health who is not conversant with clinic pathology, biochemistry, toxicology, bacteriology a correlated micrology, serologic and immunologic fac so vital in evaluating clinical entities and dispensi advice in all branches of the healing art.

This work differs from similar books in the i portant respect of presenting clinical interpretatio of given laboratory results. Their practical applic tions in diagnosis and course of therapeutic procedu are of inestimable value.

This work is divided into three parts and forty-o chapters.

It is an indispensable addition to the library students and medical men, no matter in what bran of the practice of medicine. Its future is assured.

M. T.

Sulfanilamidoterapia Local. Juan Nasio, Profess at the Facultad de Medicina del Litoral. 150 p Aniceto López, Buenos Aires, Argentina, 1942.

MOTIVATED by the conviction that sulfa dru are the foundation for the future of chem therapy, not only in practical medicine b also in biology, biochemistry and therapeutics, Ju Nasio has compiled an excellent and complete manu of local application of sulfa therapy as it is know and practiced in Argentina.

A chapter on local sulfa therapy in surgery an medical specialties (dermatology in venereal disease

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on dogs and guinea pigs

These experiments were undertaken to determi local action, concentration in the blood stream throug local absorption, local concentration and behavior sulfa inhibitors *in vivo*. Cases were divided into thre classes: (1) wounds and burns; (2) compound fra tures; (3) experimental peritonitis. Sulfanilamid and sulfathiazole were the drugs used in most e periments, although results are also reported for sulf guanidine in the blood stream concentration test Toxic and allergic reactions are discussed, as well a dosage and preparation for local application.

Studies of sulfa therapy in clinical surgery afte 1941 convinced the author that these drugs are valuable adjunct to surgical treatment and in asepsis. A separate chapter treats of portance in cicatrization

Sulfadiazine obtained from the United States made possible experimental work reported in a separate chapter on local application of this sulfa derivative.

An extensive bibliography, numerous charts, tables, illustrations and case reports make this small volume one of the most thorough studies of local sulfa therapy to appear in print. It is highly recommended to general practitioner and surgeon alike.

M. T.

Traumatic Injuries of Facial Bones. An Atlas of Treatment. John B. Erich, M.S., D.D.S., M.D. and Louie T. Austin, D.D.S., F.A.C.D. Foreword by Ross T. McIntire, Rear Admiral M.C., U. S. N., and Donald C. Balfour, Rochester, Minn. 600 pp., 333 illus. $6. W. B. Saunders Co., Philadelphia, 1944.

THERE are twelve chapters in all, of which the last three are devoted to detailed information and instructions for the construction of plaster casts, descriptions of appliances, methods of oral wiring, use of dental splints, etc. These three chapters should be read first by the average surgeon or student. Every doctor entering military service should read these three chapters. The first nine chapters are arranged in atlas form, showing by means of excellent illustrations, photos of x-rays, etc., specific examples of the types of lesions being discussed. There are 333 illustrations in all. These are arranged to fit the text in perfect sequence, so that one may see the illustration on the page opposite the text describing it.

Chapter I is very important and should be read and re-read as it covers the emergency treatment of the patient, as a whole, including the care of shock and hemorrhage, the establishment of an airway, prevention of infection of bone of the face, proper care of facial soft tissue wounds, etc.

The next eight chapters are full of concrete, illustrated examples of various types and combination of types of various traumatic bony defects of the facial bones, along with the methods of treating these lesions.

This book should be in the library of every surgeon who attempts to care for patients with injuries of the facial bones.

Horace E. Turner.

Kinetic Bandaging. Seymour W. Meyer. 310 pp. 540 illus. F. A. Davis Co., Philadelphia, 1943.

THIS book is novel in that it explains the why and rationale of certain types and methods of bandaging. As one knows, this is a subject which is difficult to present because of the nature of the subject matter and methods of presentation. However, it has been well handled by Dr. Meyer.

The book is timely in that it appears at a period when war emergencies and civil emergencies are at their height. This much neglected subject now becomes interesting to the doctor who is called upon to give first aid lectures and enter into such discussions.

Chapter 23 on regional bandaging with the triangle is especially well done.

This is a book which can be recommended to the student and practicing physician alike.

P. Thorek.

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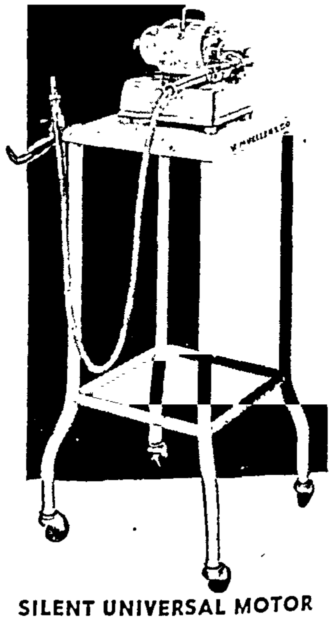

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Activities of the Veterans Administration*

BRIG. GEN. FRANK T. HINES
VETERANS ADMINISTRATION, WASHINGTON, D. C.

IN discussing some phases of our activities which relate to the present war, first let me say that the Veterans Administration is now actively engaged in adjudicating claims, making awards and administering benefits for both veterans and dependents, based upon active service in the armed forces in this war. Not only are these things being accomplished daily, in increasing numbers, but they are being handled with despatch. The orderly manner in which our current operations are being conducted, contrasts most favorably with the situation which existed at a similar period in the last war. Then the new veterans' laws had been in effect only a short time.

The agencies charged with their administration were spread over several departments of the Government. Some of the agencies were then still in an early stage of development.

The great strides which have been possible in veterans' affairs since a quarter of a century ago, are due mainly to two things—the intelligent pioneering into new realms which our law-makers initiated at that time—and the vast amount of experience we have all gained —the Government, the Congress, and officials of the great veterans' groups—since the last war.

New undertakings, in order to succeed, must have a leader with vision; in this instance it was the Hon. Sam Rayburn of Texas. In 1917 was formulated and passed by the House the basic legislation which provided the foundation and structure for the many excellent laws we now administer for the benefit of veterans and dependents of the present war.

There are four main provisions to these present laws which may be roughly grouped as follows:

1. Life insurance, which is not compulsory—the premiums being deducted from the man's pay. This is issued at net cost in amounts up to $10,000, with the Government assuming the administrative cost and the cost of the extra war hazard.
2. Hospitalization and out-patient treatment for those requiring it after discharge from service.
3. Vocational rehabilitation to enable disabled veterans to overcome vocational handicaps caused by war service.
4. Money payments in the form of compensation or pension for those disabled more than 10 per cent by service.

Compensation or pension payments are also provided for dependents where loss of life results from service.

I should call to your attention here that all of the laws providing benefits for veterans and their dependents are now administered by one agency—the Veterans Administration—and that the head of this agency is responsible directly to the President of the United States.

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*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

Thus we have centralized authority and control over all veterans' activities, although most of the administrative functions have been decentralized to our one hundred-odd field offices in the various states. This has been done for the convenience of the veterans and their families, and to bring our relief facilities as close as possible to the veterans or their dependents which our agency has been created to serve.

NATIONAL SERVICE LIFE INSURANCE

The life insurance which we issue covering our armed forces is called National Service Life Insurance. It is superior, in my opinion, to the War Risk Insurance issued during the last war.

As it is designed primarily for the protection of a man's immediate family or dependents, the beneficiaries who may be named are restricted to wife, child, parent, brother and sister. The insurance is payable to the beneficiary or beneficiaries in monthly installments over a period of years as an annuity. That is a protection against loss which proved its worth in the last war. The limit a man can be insured for is $10,000, but he may take out several policies if he wishes, within this over-all limitation. The insurance may be applied for without medical examination during the first 120 days of service. After that period has expired he may still apply, but he must then pass a physical examination. This applies also to the WACS, SPARS, and women members of the Marine Corps.

We have already received about fifteen million applications for insurance totaling more than one hundred ten billion dollars. You will realize the magnitude of this vast sum when I remind you that it is equal to more than 80 per cent of all the commercial life insurance now outstanding in the whole United States.

HOSPITALIZATION

Our present hospitalization and medical problems have already been discussed with you by Dr. Griffith, our Medical Director, so I will touch briefly upon only one aspect of these—the steps being taken to meet the Government's probable requirements for hospital beds in the future.

This is a problem which President Roosevelt has placed in the hands of the Federal Board of Hospitalization. Among the members of the Board are the Surgeon-General of the Army, the Surgeon-General of the Navy, the Surgeon-General of the U. S. Public Health Service, the Commissioner of Indian Affairs, the Director, Bureau of Prisons and the Assistant Administrator of the Veterans Administration, in Charge of Medical and Domiciliary Care.

The Board has appointed a competent Technical Committee which makes studies and recommendations concerning the technical questions which arise.

This study includes determinations as to the types and magnitude of the patient loads and the rates at which they must be provided for, the extent of additional Federal hospital facilities which will be required, the most effective utilization of the entire hospital facilities of the Federal Government, and the extent to which non-Federal hospital facilities may be available.

Overbuilding will be avoided, and existing facilities, wherever possible, will be converted to temporary wartime utilization. Expanding hospital facilities of all Federal Agencies are being planned with a view to their complete post-war use.

The areas from which hospitals will draw patients are considered, as well as the types of patients to be hospitalized. The study includes consideration of how the proposed hospital or addition may be tied in with existing federal hospitals in terms of the present and post-war hospitalization requirements, and use of existing Government reservations. Any possible or probable future expansions are also given consideration.

I think that all of our people may be confident that the future Government hospital problems will be met adequately, and that sufficient beds will be available as they become needed.

VOCATIONAL REHABILITATION

Much interest already exists in our Vocational Rehabilitation Program.

We have set up our Vocational Rehabilitation Service under the general direction of Assistant Administrator, Major O. W. Clark, with Mr. H. V. Stirling in active charge as Director of the Service. The operation of this service is carried on in 53 of our field stations, located in the District of Columbia and all of the states but one.

Vocational Rehabilitation Divisions are set up in these stations. Field Rating Boards are determining that these men have vocational handicaps. Vocational Advisers are considering education, experience and physical condition, in aiding and guiding in the election of courses of training to overcome the handicap of disability and to restore employability.

After personal consultation with each disabled man, and with due regard for his own preference, a new occupation is selected for him, and the place where he is to receive his training is agreed upon.

Educational institutions of recognized standing, and industrial establishments and farms are utilized in the training of these disabled veterans into employment.

It is our policy to train each person as near his home as may be possible.

The expense of training is borne by the Government, and during such course, the veteran's pension is increased to $80 a month for a single man; $90 with a wife or husband, and $5 additional for each child. The additional amount for dependent parents is $10 for each parent.

No course of training in excess of a period of four years can be approved. nor will any training be afforded beyond six years after the termination of the present war.

A number of conditions must be met in order to be eligible for training. These are: service in the armed forces after December 6, 1941, and during the present war; an honorable discharge; veteran must have a disability incurred in or aggravated by such service for which pension is payable; and he must be in need of vocational rehabilitation to overcome the handicap caused by his disability.

PENSIONS

Pensions for disability incurred in service are also paid, if the man is disabled 10 per cent or more. This is not incompatible with our Vocational Rehabilitation program. It actually supplements it.

Many men may become disabled to a pensionable degree, yet not suffer a vocational handicap which would justify a course of training. Others may not be feasible for training. Still others, after completing their training and embarking upon new occupations, will nevertheless still be disabled—for which disability they will be entitled to pension.

Pensions for disability run from $10 a month for a 10 per cent disability, to
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for both. Payments also may be made to a dependent parent or parents—$45 per month for one, or $25 each if there are two.

A number of other benefits are administered, and many of these apply to persons who were not disabled in service, such as hospitalization for non-service connected disability, veteran's preference in Government employment, and burial benefits. However, the more important benefits which may result from service in the present war are the ones I have outlined for you.

SUMMARY

The Veterans Administration has been instrumental in procuring laws for the benefit of veterans of the present war as well as the last war. These may be divided into four groups: (1) non-compulsory life-insurance; (2) hospitalization and out-patient treatment for those men requiring it after discharge from service; (3) vocational rehabilitation; and (4) compensation or pensions for those with disability totaling more than 10 per cent.

RÉSUMÉ

Le Veteran's Administration a procuré les lois suivantes pour les vétérans de la guerre actuelle et pour ceux de la première guerre mondiale: (1) assurance non-obligatoire sur la vie; (2) traitement gratuit pour les malades à l'hôpital ou a domicile pour ceux dont l'état physique nécessite des soins médicaux après retour au foyer; (3) réhabilitation vocationelle; (4) compensation ou pension pour ceux dont l'incapacité excède 10 pour cent.

SUMARIO

La Administración de Veteranos ha hecho todo posible para obtener leyes favorables para los veteranos de la guerra actual como también para aquellos de la primera guerra mundial. Estas leyes pueden ser divididas en cuatro grupos:

1. Segura de vida sin compulsión.
2. Hospitalización y tratamiento ambulatorio para los hombres que lo necesitan después de completar el servicio militar.
3. Rehabilitación vocacional.
4. Compensación o pensión para aquellos con impedimento de más de 10 por ciento total.

Выводы

Управление по оказанию помощи Ветеранам способствовало выработке законов, касающихся помощи ветеранам настоящей и прошлой войны. Эти законы могут быть разделены на 4 основные группы: 1) добровольное страхование жизни; 2) госпитализация и лечение амбулаторных больных, нуждающихся в лечении после увольнения их из армии; 3) восстановление профессиональной трудоспособности и 4) компенсации и пенсии тем, которые потеряли трудоспособность больше чем на 10%.

MOTION PICTURE EXHIBIT

NINTH ANNUAL ASSEMBLY OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS

Those desiring to present motion pictures, kindly communicate with the chairman of this committee, Dr. William F. Whelan, 2004 Walnut St., Philadelphia 3, Pa., giving full details as to subject, length of film, etc.

Anesthesia in War Surgery*

FRANCISCO GRAÑA, M.D., F.I.C.S. (Hon.)
LIMA, PERU

IN the course of the last three-quarters of a century two fundamental problems of surgery, different in their respective natures and purposes, but equal in importance, have gone through a parallel and simultaneous evolution, as far as diffusion and efficiency are concerned; the first was the fight against infections, the second the endeavor to obtain a proper solution for anesthesia in surgery. Since Pasteur and Lister, therapeutists have sought to discover powerful germicides innocuous to the cells and tissues, because while iodine, carbolic acid, mercury, hypoclorite of lime and the dyes in strong solutions are effective as germicides, they are destructive to the tissues which they try to protect from infection. And if the solutions are weak enough to respect the vitality of the tissues and their capacity for reproduction, they are unable to destroy the germs. What is more important, none of these agents or other similar ones could be employed without danger inside the body to fight visceral infections and septicemic processes.

In spite of Lister's discoveries, Domagh's introduction of the sulfonamides provided the solution of the problem sought by Ehrlich: *"Terapia sterilisans magna."*

Since Simpson and Morton, anesthetists have likewise been seeking agents able to eliminate pain easily and quickly for the length of time required for the operation and without harmful reactions during the administrative and postoperative course.

Chloroform, which for many years reigned as an autocrat in the operating theater, was banished little by little from hospitals, practically all over the world. Ether administered by the open mask and drop methods, and by means of many different machines, steadily gained favor in public hospitals and private clinics because of the decrease in mortality. For many years ether was used in its pure form; later on, it was mixed with nitrous oxide, carbonic acid and cyclopropane. With these new mixtures it was possible to mitigate, but not to entirely eliminate, the consequences of shock, secondary nausea and vomiting, the pulmonary complications, thrombosis and embolism.

While inhalation narcosis progressed to some degree of perfection, a new form of anesthesia was introduced with the employment of cocaine by Köller and synthetic products such as novocaine and suprarenine, the *"chemical tourniquet"* as Braun called the latter. Later
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*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

absolutely innocuous method proved to be the ideal one.

Distinct preferences for certain agents or methods of anesthesia are noticeable not only in various countries, but also in the surgical centers of each one of them. There still exist hospitals in which ether, pure or mixed with gas, is employed as a method of routine. In some, spinal anesthesia is used in the majority of cases; in others, local and regional anesthesia is considered the best method. In one of our hospitals the proportions are as follows:

	Per cent
Local and regional anesthesia	45
Spinal anesthesia	27
Intravenous anesthesia	21
Ether, gases, chlorethyl	8

During the First World War, war surgery was confined to military organizations; it was a military doctor's specialty. The casualties occurred only on attle-fields or in the cities attacked; the victims were nearly all soldiers. On the other hand, the arms used until then were bullets, shrapnel and bombs which produced wounds which it was possible to classify in groups more or less of the same kind.

In the present war, the multiple kinds of vulnerable agents, their extraordinary power and, above all, the aerial bombardments which demolish all kinds of buildings, causing great fires and casualties among the entire civilian population, both urban and rural, have brought in their trail a series of new and brutal traumatic lesions and have transformed completely the limits and nature of war surgery.

TYPES OF ANESTHESIA USED IN WAR SURGERY

In war surgery all methods of anesthesia must, of course, be employed, depending on place of occurrence, the kind of injury and the condition of the patient; but it may nevertheless be possible to establish some general principles.

In simple fractures the treatment consists of suitable traction of the bone ends, in order to bring them into correct and anatomic position, maintaining a perfect immobilization, by means of plaster casts alone or by inserting pins, which are imbedded in the plaster. These operations can be performed with novocaine solutions. A half per cent solution is no longer used; a 2 per cent solution is now recommended. In simple infiltration we use the 1 per cent solution (the cautious use of this solution is not dangerous and the resulting anesthesia perfect).

In the majority of hospitals local and regional anesthesia is not often used. Resection for varices, operations on the thorax, hernia operations, chronic appendicitis, rectal operations, gynecologic and urologic operations performed under general narcosis can be effectively performed under local anesthesia, thus avoiding the dangers and disabilities of a narcosis. In our opinion, the reason for this limited use of local and regional anesthesia is to be found in the ease of administration of general anesthesia and lack of knowledge of the exact technic necessary to effect good local and regional anesthesia. For this reason we recommend more training in this form of anesthesia, which requires thorough anatomic knowledge and much experience.

In compound fractures with severe bone lesions and wounds of the soft parts, when it is necessary to perform "débridement" in order to enlarge the wounds and eliminate cellular spaces, recesses and bone fragments, and where the use of the Orr-Trueta cast is contemplated, general anesthesia must be resorted to in order to avoid pain.

After the patient in shock has received the proper treatment, Pentothal is an ideal anesthetic; it is easy to administer under good control and may be terminated at will, requiring the minimum of surgical equipment and having no aftereffects. When the operation requires a long time, and the first gram of anesthetic, which has been dissolved in 10 cc. solution, is used up, anesthesia can be maintained by injection of another gram of a weaker solution (100 to 300 cc. of serum). As the basic fundamental principles in the treatment of fracture cases are the use of a minimum amount of time for the initial treatment after the accident and the anatomic replacement of the injured bones and soft parts by proper immobilization, the two forms of anesthesia are indicated, and can be administered in first aid posts or in evacuation hospitals.

As a matter of fact, anesthesia is nowadays first resorted to in the front lines. We know that every soldier carries with him a small quantity of sulfa drugs, as well as a small dose of morphine. Thus, when a man is wounded the physician or his assistant employs sulfa drugs locally and orally, and the dose of morphine is given intravenously. There are two reasons for advising this method: (1) because the required dose is usually very small and can be repeated; (2) because the effect is instantaneous.

Following these two preliminary treatments, the wounded man is sent to the Casualty Clearance Station, the evacuation hospital and later on the base hospital.

Injuries of the thorax and severe conditions due to pneumothorax, open or closed, cardiac tamponage, and wounds of the thoracic wall must be treated under local or regional anesthesia; in a few cases intravenous anesthesia is administered, since inhalation anesthesia here is contraindicated.

As far as injuries of the abdomen, the urinary tract or those involving the nervous system are concerned, the use of anesthesia in war surgery differs little from that employed in civil practice and in peace time. Therapeutic measures may be resorted to in base hospitals, where necessary means for the purpose are available.

In many cases of war surgery it may be possible to use spinal anesthesia. I believe there are no surgical centers in the world where this anesthesia is more extensively used than in the United States and Mexico. Many surgeons use spinal anesthesia for all kinds of operations, with the exception of those on the thorax, neck and head. This form of anesthesia has great merit when properly used and does not expose the patient to any difficulty either in the course of the operation or in the postoperative period. It is generally held that the cause of shock and the drop in blood pressure are due to hypoglycemia, resulting from the blocking of the glycogenic function of the liver and that of the suprarenal glands. As a matter of fact, the systematic use of glucose serum, judiciously administered at the same time as the spinal injection, and a small dose of cardiac stimulant and adrenalin, frequently prevent those dramatic accidents due to spinal anesthesia. Having tried all the cocaine derivatives, we concluded that the best and most effective one is pure novocaine dissolved in serum, combined with a small quantity of dextrose by the method of continuous administration.

While nothing new has been stated, there are many rules and principles known to all of us, of which it is well to be reminded, since they are either not followed or incorrectly executed.

SUMMARY

A history of the evolution of anesthesia during the past seventy-five years is given, the ideal having been attained

with the introduction of intravenous anesthesia using barbiturates.

In war surgery all types of anesthesia are necessary. Two per cent solution of pure novocaine is recommended in simple fractures, 1 per cent in simple infiltration. In compound fractures, Pentothal is an ideal anesthesia, 1 gm. in 10 cc. solution followed by a weaker solution if necessary (1 gm. to 100-300 cc. of serum). Sulfa drugs and morphine are carried for use in the front lines. Local or regional anesthesia must be used in thoracic injuries, pneumo-thorax, cardiac tamponage. Spinal anesthesia is extensively used in the United States and Mexico for all types of war surgery.

RÉSUMÉ

L'évolution de l'anesthésie durant les dernières soixante-quinze années est rélatée. L'idéal a été atteint par l'introduction de l'anesthésie intraveneuse par l'emploi des barbiturates. Dans la chirurgie de guerre, toutes les formes d'anesthésie sont nécessaires. L'auteur recommande une solution de 2 pour cent de novocaine dans les fractures simples, de 1 pour cent pour l'infiltration. Dans les fractures ouvertes, le pentothal est l'anesthétique de choix: 1 gm. dans 10 cc. de solution, suivi de solution plus faible si nécessaire (1 gm. dans 100-300 cc. de sérum). Les médicaments sulfa et la morphine sont accessibles dans les avant-postes. L'anesthésie locale ou régionale est indiquée dans les traumatismes du thorax dans le pneumothorax et pour la tamponnage cardiaque. L'anesthésie rachidienne est beaucoup employée aux Etats-Unis et au Mexique pour la chirurgie de guerre.

SUMARIO

El autor hace revista de la evolución de la anestesia en los setentaicinco años pasados, llegando al ideal con el uso de la anestesia intravenosa empleando los barbiturates.

En la Cirugía de Guerra es necesario escoger uno o más de todos los tipos o métodos acostumbrados e indicados. El uso de una solución de 2 por ciento novocaina pura se recomienda en fracturas simples; 1 por ciento para infiltración sencilla. En fracturas abiertas, el Pentotal es ideal, 1 gm. en 10 cc. solución, seguido por una solución más débil, si es necesario (1 gm. a 100 o 300 cc. de solución). Las drogas sulfas y morfina son utilizadas en las lineas frentes de combate. La anestesia local y regional y raquidea deberán ser empleadas en los daños torácicos, neumotorax y tamponagecardiáco.

La anestesia espinal se practica extensamente en los Estados Unidos y en Mexico en toda clase de Cirugía de Guerra.

Выводы

Дается описание истории эволюции анестезии за период последних 75 лет, причем прекрасные результаты были достигнуты с введением интравенозной анестезии с применением бабитуратов.

В военной хирургии имеют важное значение все методы анестезии. При простых переломах рекомендуется 2-х процентный раствор чистого новокаина, при простом инфильтрате 1 процент. При усложненных переломах найлучшей анестезией является Пентотал (Penthotal) 1 грм. на 100 к. с. раствора и, если необходимо, затем более слабый раствор (1 грм. на 100-300 к. с. сыворотки). На передовых позициях применяются сульфаты и морфий. При горловых ранениях, пневмотораксе, сердечных закупорках должна применяться местная или областная анестезия. В Соединенных Штатах и Мексике для всех видов военной хирургии чрезвычайно широко применяется спинно-мозговая анестезия.

Present Treatment of Wounds and Burns*

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THE mobile character and greatly increased aerial activity of the present war has necessitated considerable change in medical procedure in combat areas. While the first emergency treatment of casualties presents the same problems as heretofore—control of hemorrhage, treatment of shock and prevention of infection—wounds of the present war are frequently multiple, severe and extensive, predisposing to infection and accompanied by severe shock. Medical units in forward areas must now be mobile and prepared to do what was previously considered "hospital surgery" at a main dressing station near the firing line. Surgeons attached to these units must be qualified to do traumatic surgery of any part of the body.

British reports from North Africa state that two limiting factors, the shortage of water and the need to limit supplies, keep desert surgery to bare simplicity. The essentials of asepsis are masks and gloves, and these, with shorts for decency, are all that the desert surgeon wears for most operations. The gloves are scrubbed on the hands and worn until they give out. The operating room assistant handles instruments and towels with forceps but does not scrub up. The patient's clothes are removed only round the wound and scrubbing and shaving are also limited to its neighborhood. Only for an abdominal or head wound is the full ritual of two persons capped and gowned adopted.

EFFECTS OF PROJECTILES

The effects of high velocity projectiles upon the body tissues are not generally appreciated by the civil surgeon. In the immediate vicinity of the explosion of an aerial bomb, the bomb fragments have a velocity of some 5000 feet per second. These fragments are irregular in shape and size and frequently cause multiple or great gaping wounds with extensive tissue destruction.

The modern high velocity rifle bullet produces a variety of wounds. Those of entrance and exit may be small and the wounds readily heal. If bone is struck, however, the bone fragments act as projectiles and the wound of exit is large or there is great destruction of the deeper tissue. Richocheting bullets and metal fragments cause the most severe and revolting wounds.

EMERGENCY TREATMENT

The majority of casualties need ½ gr. of morphine promptly. More than this amount is likely to increase the symptoms of shock and may depress the respiratory center. When rel[illegible] is urgent, an intravenous d[illegible] ¼ gr., diluted to at least 1 cc. wi[illegible] water and injected [illegible] minute or more, will reduce pain almost immediately. Morphine should not be used in head injuries unless complicated by extensive injuries elsewhere. It should never be used routinely.

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*Presented at the Fourth International Assembly of the International College of Surgeons, New York City, June, 1943.

Our conception of wound infection has changed during the present war. We now know that many of the more virulent organisms are not introduced into a wound by the missile but are introduced when it is being dressed. Greatest danger of infection is from the fingers, nose or mouth of the person who first inspects and treats the open wound.

At the first dressing, hemorrhage is controlled, the wound grossly cleaned and powdered sulfonamide sprinkled or poured into the wound. A sterile occlusive dressing is then firmly applied. The severely wounded are given two grams of sulfadiazine internally immediately after injury, followed by one gram every six hours as indicated. First aid packets now contain a package of crystalline sulfanilamide and another of sulfadiazine tablets for this purpose.

We have found that gauze moistened with saline or azochloramid solution gives the best results as a wound dressing because free drainage is permitted. Dry dressings tend to trap exudate beneath an impervious layer of caked powder while vaseline gauze tends to dam back the exudates, the sulfonamides losing their potency in each case.

Naval experience has definitely shown the value of the sulfonamides locally in the prevention of wound infection. Crystalline sulfanilamide has been quite satisfactory for this purpose. Sulfathiazole has been unsatisfactory because it cakes, forms a plastic cast and prevents drainage. Microcrystalline sulfathiazole, however, is more satisfactory locally than sulfanilamide.

Recent investigations have indicated that the sodium salts of sulfadiazine or sulfathiazole, because of their much greater solubility, are more efficacious when used locally for prevention of wound infection than other sulfa preparations.

In deep wounds, a sulfonamide suspension is injected into the wound pocket.

No attempt should be made to remove metal fragments from wounds at the first dressing unless readily accessible. The incidence of cellulitis or severe infection is apparently not increased by even large metal fragments.

Except in superficial wounds, it is imperative that no wound closure be attempted at the first dressing. The great majority of wounds which have received primary suture at the first aid station become badly infected. Following local treatment, sutures may be placed, left long and tied after the third day if there is no infection or secondary closure may be done later when indicated. Unconscious patients should be transported prone rather than on their backs in order to permit falling forward of the tongue and escape of saliva.

Because of their importance, emergency treatment of wounds will be summarized by regions:

HEAD WOUNDS

The majority of penetrating wounds of the head, although not immediately fatal, will result in death unless the wounds are properly treated from the beginning. All wounds of the scalp should be considered as serious. Even without associated fracture, these wounds are dangerous because of possible infection. Final suture and closing of scalp wounds should only be done in a properly equipped operating room where associated skull fracture or brain injury can be properly treated if present. If the circumstances are such that the patient cannot be transported within a reasonable time to a place where complete operating facilities are available, then as thorough a surface operation as possible may be done in the field dressing station. While this leads to primary healing of the scalp wound without treatment of the possibly co-existing skull fracture or brain injury, these can be safely treated later if the scalp wound has healed and there is less danger of infection than if the scalp wound is left open indefinitely.

Wounds of the face are an exception to the rule against primary suture. They are usually not deep, can be easily cleaned and may be sutured without tension. Because of the excellent blood supply, primary healing usually results. Suture is especially recommended for wounds of the mouth. These frequently give excellent results from primary wound suture. In case of wounds of the upper eyelid, in addition to suturing the wound itself, it is better to suture the margins of the upper and lower lids together with a few interrupted sutures to prevent lid contracture until the patient can be properly treated by a plastic surgeon. The technic is mechanical cleansing, free sprinkling or spraying with sulfonamide powder, suturing preferably with fine, alloy-steel wire, and application of a pressure dressing.

CHEST WOUNDS

These wounds permit air to rush in and out of the pleural cavity, cause marked shock and death and must be promptly closed if the patient is to live. They may be closed with a large pad of gauze from the first aid packet, though moist gauze is better. If neither of these is available, the wound must be quickly closed with anything obtainable, the man's shirt, an ordinary thread and needle, etc.

Cutaneous emphysema is frequently noted in areas near the thoracic wound where fine crepitus may be detected. This is comparatively unimportant as the air usually originates from outside the lung.

Emphysema in the region of the neck indicates that gas bubbles have penetrated into the mediastinum where it induces dyspnea, circulatory disturbances and early death unless relief is given. Puncture is of no avail in these cases and only an extensive incision in the neck will adequately relieve the condition.

The outlook is more favorable if the air has escaped from the lungs and gathered in the pleural area. In this case, tension needs to be watched for immediate treatment if necessary. Too much tension is characterized by intense dyspnea, tense auxillary respiratory muscles, and the patient seeks relief by throwing his arms about. Only a small opening, a small puncture, is required to relieve this condition. Permanent drainage may be obtained by leaving the puncture-needle in position for twelve to twenty-four hours or longer. Thoracotomy may later become necessary but is preferably not attempted in the field.

In treating chest wounds, care must be exercised not to induce an open pneumothorax by injuring the parietal pleura. Simply cleanse carefully, sprinkle with sulfonamide and apply a sterile dressing. Should pressure rise rapidly in a closed pneumothorax, air may be aspirated from the pleural cavity by simple puncture in the absence of a pneumothorax apparatus. Removal of foreign bodies should not be attempted until the patient reaches a hospital. Both British and American reports emphasize the necessity for conservative front line thoracic surgery.

of dressings if no preparations have been made to meet this possibility. A wounded man who is able to breathe adequately in a watertight, well adjusted bandage, may die during the change of dressing.

ABDOMINAL WOUNDS

Patients with abdominal wounds require early operation, or they will develop a fatal peritonitis. These cases, both before and after operation, stand travel worse than any other class of injury. They must be operated on at the nearest point to the firing line where an expert surgical team can be placed. In the field, freely sprinkle the wound with powdered sulfonamide and evacuate to hospital or adequately equipped dressing station as soon as possible. Too much time should not be wasted trying to overcome shock before evacuation. After operation, these patients must not be further transferred for at least four and often ten days, until they have established equilibrium. Earlier in the war, many of these patients were evacuated by air after a relatively simple operation and died in consequence. In so far as practicable, arrangement should be made for a certain number of beds at each forward medical center for the care of abdominal cases.

TREATMENT OF SHOCK

Shock is the number one factor common to all war casualties. Treatment should start before its onset. Waiting for the clinical picture to develop before instituting treatment invites disaster.

The best field preventive of shock is blood plasma. It should be given all seriously wounded patients as soon after injury as possible, certainly immediately after arrival at the first casualty station. Transfusions of plasma in this zone will do more to reduce mortality from shock than any other single factor. All members of the field medical units should thoroughly understand its administration. The minimum amount given is 500 cc. Some wounded require 1000-1500 cc. before they are evacuated to hospital.

Vasoconstrictive drugs and circulatory stimulants are of little use in treatment of shock. Recent reports on adrenal cortical extract by the National Research Council state that it has no discernible effect on traumatic or burn shock in man. Bandaging of limbs does no good unless required locally for wounds.

HOSPITAL TREATMENT OF WOUNDS

Wounds given emergency sulfonamide treatment are usually more or less filled with caked powder when received in the hospital. While they are not sterile and there may be some necrosis or sloughing, there is rarely any spreading infection or fever. It has been found inadvisable to try to remove this sulfonamide. The wound area should be thoroughly cleaned, the wound irrigated with normal saline solution, skin and fascia incised along anatomical planes to lay all parts of the wound open and allow any deep accumulation to more readily escape; loose and obviously devitalized tissue is rapidly cut away with scissors. No attempt is made at radical débridement. Using this method, the average surgeon can care for three patients in the time required for one thorough débridement; the patients lose less blood, require less anesthetic, travel better and their wounds are in as good condition upon arrival. Reports from the Pacific and African combat areas state that the local use of sulfonamides plus nonsuture of wounds at first dressing have made radical wound débridement unnecessary. Those treated conservatively may be closed later by secondary suture, whereas the others require later skin graft and plastic operations.

On the other hand, some recent reports from the Middle East and North African combat areas have stated that wounds packed with sulfanilamide did no better than those without it and that more radical débridement and prophylactic use of anti-gas serum is necessary to prevent gas gangrene. From what I saw of the efficacy of local use of sulfonamides in preventing wound infection at Pearl Harbor, I cannot agree that wounds do as well without as with sulfonamide locally. These reports do, however, emphasize recent warnings that the local use of sulfonamides is not a substitute for adequate surgery and that their use alone will not necessarily prevent gas gangrene or other infection developing in deep wounds. For example, wounds caused by fragments of aerial bombs often have a small wound of entrance and extensive damage beneath. These deep wounds must be thoroughly opened, débridement used as indicated, dusted with sulfonamide powder and left open for at least three days.

With this treatment, the wounds are relatively painless and become clean in quite a short time.

In connection with use of sulfonamides in wound treatment, it should be remembered that it is now a well recognized fact that the entire group of sulfonamide compounds, in occasional patients, may produce most serious and bizarre effects on the blood cells. These drugs, therefore, should not be continuously or extensively used with any one patient except under competent medical supervision. Nor should excessive amounts be used locally or intraperitoneally. This, however, does not affect their use in first aid for the wounded.

Specific wound treatment in hospitals will be summarized by anatomical regions:—

Head. If sulfonamide and sterile dressing were used in the emergency treatment of the wound, operation may be delayed as much as forty-eight hours after injury and the wound still treated as a fresh wound. The most important part of the operation is a thorough cleansing and débridement of the wound tract in the brain. This may contain hair, dirt, grass and bone fragments. Damaged brain tissue and blood clots are removed by suction and all foreign material carefully washed or picked from the wound. It is then gently irrigated with large quantities of sterile saline solution, all bleeding controlled, the wound tract filled with sulfanilamide powder and the external wound closed. Sulfanilamide is most effective for open wounds of the head. Symptoms of cerebral irritation, characterized by Jacksonian seizures, have followed the insertion of sulfathiazole and sulfadiazine in brain wounds. The missile should be removed if reasonably accessible but otherwise left alone.

In head wounds operated on more than forty-eight hours after injury, the wound tract should be cleaned and débridement done as just described, the entire wound filled up to the skin with powdered sulfanilamide and the tract loosely packed with sterile vaseline gauze or gauze strips surrounded by rubber tissue.

Chest. Wounds of the chest vary considerably. Through and through bullet wounds may cause practically no symptoms, the bullet passing through the chest and leaving only small wounds of entrance and exit. Small shell fragments may traverse the lung and lodge in the chest wall of the opposite side. Patients will shell fragments in the lung may spit blood for a day or two and have no other symptoms. Varying degrees of hemothorax or hemopneumothorax are frequent. These patients usually run a fever of 101° or 102° F., [illegible] F., but they rarely [illegible] should be treated [illegible] though empyema may seem to be developing. Aspiration is not done except for respiratory embarrassment or for diagnostic purposes. In all our cases, the temperatures gradually fell to normal as the blood was absorbed, and no empyema developed.

In case the wound is large, it should be rapidly cleaned, débridement used as necessary, easily accessible foreign bodies removed and blood sucked from the pleural cavity if possible. Sulfonamide powder is then freely sprinkled or sprayed in the pleural cavity and the wound closed tightly.

Abdomen. Patients with abdominal wounds are usually badly shocked but time spent in resuscitation lessens their chances of survival. A pint of blood may be rapidly given but the patient should then be promptly taken to the operating room, with the drip still running if there seems the slightest chance that he will survive the operation. If these is doubt of intra-abdominal injury, it is better to do an exploratory laparotomy than to wait until the diagnosis is certain. When there is doubt as to whether the abdomen has been penetrated, it is safer to make a small incision above the pubis and pass a swab into the pelvis than to wait for physical signs of peritonitis. A conscientious effort must be made to repair these wounds as recovery often occurs in an apparently hopeless case.

Recent reports from combat areas emphasize the following points in surgery of abdominal wounds:

(1) A straight through incision is better than a rectus retracting one; it is quicker and heals better.

(2) The serious damage done by tiny pieces of metal penetrating the abdomen have emphasized the necessity of careful study of every abdominal wound no matter how insignificant it may seem. Examine the abdominal viscera systematically and thoroughly regardless of the location of the external wound.

(3) Resection should not be done unless the blood supply is inadequate.

(4) Patients with perforation of the large gut do not do as well as those having perforations of the stomach and small intestine because of complicating wound infection or fistula formation. It is probably better not to close the skin and subcutaneous tissues in these cases.

(5) The large intestine must be exteriorized and drained after any injury, however trivial. If the injured part is mobile, it should be resected and the ends brought to the surface as a double-barreled colostomy. If it is fixed, the injury should be repaired and a proximal colostomy done. Any injury of the rectum, especially an extra-peritoneal one, demands a proximal colostomy. This principle of exteriorization is one of the most important advances in the surgery of this war. In the last war, the death rate in injuries of the colon was about 70 per cent and in those of the rectum about 90 per cent. It is now about 50 per cent.

(6) Except in relatively clean cases, a small tube (No. 10 catheter) should be inserted to the point of maximum soiling and brought out through the incision. At the end of the operation, a suspension of 10 gm. of sulfadiazine in 50 cc. of saline is injected slowly down the tube, which is then tied across and tucked in the dressings. If the progress of the case seems to demand it, more sulfadiazine is put down on one or two subsequent occasions and the tube finally pulled out. When this is not done, scatter 8 to 10 gm. of powdered sulfonamide through the abdominal cavity at the end of operation.

(7) All patients with injury of the intestinal tract should be nursed afterwards in the Fowler position, with continuous gastric suction and continuous intravenous fluids.

Extremities. Wounds of the extremities constitute more than two-thirds of hospital admissions of war casualties. Metal fragments in the tissues is perhaps the most frequent surgical condition encountered. These fragments may number hundreds. Most of them give no trouble and should be left alone unless readily accessible, being removed only when they lie in joints or cause symptoms. It is sometimes necessary to remove them for psychological reasons. Wounds of joints do not do as well as wounds of the soft tissues. With them, as little surgery as possible should be done. A sulfonamide suspension should be injected in the wound and a cast applied.

Secondary hemorrhage is a constant danger in battle casualties. Metal fragments which produce relatively small wounds may partially sever arteries and cause large pulsating hematomas with constant danger of massive hemorrhage. The only safe way of treating a pulsating hematoma is by ligation of the involved artery above and below the injury and division of the vessel. The accompanying vein is also usually ligated. The collateral circulation is good, and complications do not occur following the double ligation. Attempt at arterial suture is not recommended. The sac is not excised but scraped with gauze, washed clean, sprayed with sulfonamide powder and then obliterated with a few interrupted sutures.

Fractures are usually compound. These are treated the same as wounds of the soft tissues and the limb put up in plaster if available, traction being incorporated if necessary.

The sulfanilamide-Orr-Trueta plaster cast treatment for extensive wounds of the extremities, with or without associated fracture, was used for all such wounds at Pearl Harbor and the excellent results then obtained have been confirmed in other combat areas. Plaster immobilization of extremities after severe wounds with or without fracture very definitely relieves pain and promotes healing. With this treatment, these patients can be transported long distances in comparative comfort, without change of dressings, while their wounds improve instead of becoming worse.

In applying this treatment, the wound is first treated as has been described. It is preferable for the layer of gauze dressing next the surface of the wound to be treated with vaseline or other lubricant. Then, if the blood supply of the limb is adequate, an accurately fitting plaster cast is applied, padding being placed only over bony prominences. No window is left over the wound as this promotes herniation of tissue. Skeletal traction may be incorporated if necessary. In the absence of complications, which are rare if the wound has been properly handled, the cast is preferably not removed for three weeks after application even though a terrific odor develops. This frequently occurs with open wounds but is due to discharging wound secretion beneath the cast and is not a sign of serious infection. Every war wound, however, needs to be examined and checked at the end of three weeks.

Patients with infection who are dressed frequently with consequent movement of the affected part do not do as well as those with whom the dirty dressings are left in place in the plaster. Frequent treatments, while occasionally required, cause unnecessary discomfort to the patient and the severity of the infection is increased. Plaster cast with infrequent dressings gives better results than hot soaks or other forms of frequent local treatment.

Recently, the Roger Anderson and Stader Fixation and Reduction Splints have been found of great value for closed fractures.

The war has produced a considerable increase in fractures of the os calcis among naval personnel. Most of these casualties are now the result of the explosion of torpedoes or bombs below decks, this causing a sudden and forcible buckling upward of the ship's deck on which the man is standing. These fractures are frequently bilateral, as the man's weight is usually rather evenly distributed on both feet at the time of impact. The os calcis of one foot, however, may be more comminuted or compressed than the other.

Amputation. Patients may be received who have had a traumatic amputation or in whom the bone had been so severely damaged that immediate amputation is necessary. In selected cases where the patient is in good condition and adequate operative facilities are available, amputation with flap and primary suture is perhaps justified. The vast majority of such patients however are received under adverse circumstances. In them, a guillotine type of operation is usually advisable, all structures being cut across at the same level and the wound treated as any other large open wound. Later, attempt must be made to cover the bone end with soft parts or re-amputation done if necessary.

Skin grafts. Use of sulfonamides alone does not necessarily clean up a granulating wound surface for skin graft. Reports from the southwest Pacific state that the best results are obtained by sprinkling the wound with powdered sulfanilamide, covering this with gauze saturated with 1-500 solution of azochloramid in glyceril triacetate, covering this with gauze dressings saturated with normal saline solution and bandaging with an elastic pressure bandage. The dressing is kept moist with saline solution injected into the dressing through catheters. Wounded extremities should be elevated. This dressing is changed once a day. After forty-eight hours, the granulating surface is usually clean, firm and red. Third degree burns should be grafted as soon as they are uninfected, usually four to six weeks after injury. Paper-thin Thiersch or split-thickness grafts are superior to pinch grafts, healing being more rapid and complete and end-results better.

Anesthesia. Spinal anesthesia is poorly tolerated by severely wounded patients. Local anesthesia may be employed if adequate for the occasion. Intravenous anesthesia is chiefly used for short procedures or to supplement local anesthesia. It is usually preferable in chest wounds but patients with abdominal wounds do not take it well. Pentothal has been quite satisfactory. The majority of our patients in the field are given open drop ether unless an expert anesthetist is available. This is suitable for all casualties except those having chest wounds and can be successfully given by comparatively inexperienced anesthetists.

Gas gangrene has been infrequent in the present war. Use of the sulfa drugs and leaving the wound open at time of first dressing has been considered chiefly responsible for this decrease, though the fact that but little fighting has occurred in well-cultivated agricultural areas since our entry in the war undoubtedly has some bearing.

Early diagnosis is extremely important and is based on the following three early symptoms occurring twenty-four hours or more after injury:—

1. Watery, brown discharge.
2. Brawny discoloration about the wound edges.
3. Typical "dead rat" or garlic-like odor—always present.

A wound showing these three early symptoms must be immediately and widely opened without waiting for laboratory report. It must be radically treated by débridement, freely sprinkled with sulfonamide powder and left open. Anti-gas serum should also be used, the first dose three times the ordinary dose; then every four to eight hours as indicated.

BURNS

Burns have been one of the most serious types of wounds during the present war and are much more common than in the first World War. Under conditions of modern warfare, they comprise some 60 per cent of the casualties.

The most important and immediately imperative treatment of burns is to allay pain and combat shock. Morphine and blood plasma are the prime factors in treatment. Local treatment may be applied simultaneously or it may wait. Plasma has been almost a specific in these cases.

The amount of plasma to be given of course varies with the condition of shock, area of burn, etc. As with wounds, at least 500 cc. should be given severely burned patients as soon as possible. The worst cases need more. Plasma must be given rapidly, 500 cc. in five minutes, to the patient in critical condition; it must not be allowed to flow drop by drop. Syringe injection may be used. A good practical rule for twenty-four-hour administration of plasma at hospital or in the field is that used by the Navy:

1. 100 cc. of plasma for every 1 per cent of body surface burned, up to 4 or 5 litres. The palmar surface of one hand represents approximately 1 per cent of total body surface; the chest and abdomen about 20 per cent.
2. Always give in divided doses.
3. If hematocrit determination can be done, give 100 cc. of plasma for each point above 50 per cent cells.

Following plasma, normal saline solution with 5-10 per cent glucose or 1.8 per cent sodium lactate solution may be given intravenously or orally, if necessary for fluid intake, but should not exceed the volume of plasma given in any one twenty-four hours except when there is severe hemoconcentration, hematocrit about 70 per cent cells. The sodium lactate solution should be given orally if the patient can take liquids.

Because of the condition of the skin, edema, etc., it may be extremely difficult to find a vein for plasma injection. At Pearl Harbor, it was necessary to use veins anywhere on the body for this purpose. The femoral vein is nearly always available and can be easily reached by introducing the needle at right angles to the skin 1½ in. below the midpoint of Poupart's ligament and medial to the palpable pulsating femoral artery.

A point not generally appreciated is that, in emergency due to absence of available peripheral veins, intravenous medication of blood plasma or citrated whole blood can be administered through the corpus cavernosum of the penis. In occasional cases, this could easily be a life saving procedure. Slightly more pressure is needed than for ordinary intravenous infusions but the rate of flow may be as rapid there as elsewhere. This method is not recommended for other solutions because of the risk of chronic cavernositis.

Human serum albumen may be used in emergency treatment in place of plasma. While the indications for its use are the same, it is not a substitute for plasma. While early administration will prevent the fall of blood pressure associated with upon tissue fluid to increase the blood volume, considerably greater clinical judgment is required for its use than for the use of plasma. The written precautions included in every package of serum albumen should be constantly borne in mind. Dehydrated patients must receive adequate fluids parenterally. Serum albumen is contraindicated in cardiac degeneration.

Local treatment of burns continues in a state of flux. Unfortunately, no standard local treatment can be recommended and the individual physician must be guided by his own experience, judgment or preference and the remedies available.

Burned areas covered with heavy fuel oil may be cleaned by gently wiping them with absorbent cotton soaked in a purified mineral oil such as Nujol. This leaves a thin, oily film which is more readily removed. Several detergents readily obtainable commercially are also excellent for this purpose. These are Drene, Dreft and Orvus. They are all used in 5 per cent solution and remove practically all oil.

Burns have recently been successfully treated with double strength, normal saline solution locally or in a tub. Pendleton's paraffin spray method is still being successfully used.

Prepared thin therapeutic membranes or films in which various chemotherapeutic agents were incorporated have been highly recommended during the past year. These contain 10 to 15 per cent sulfanilamide, buffer, and with or without azochloramid. They have not entirely prevented infection however.

Fox has very successfully used an ointment containing 5 per cent tannic acid and 3 per cent sodium sulfadiazine in an anhydrous base as first treatment for burns. This produces a rapid but light tanning and a soft, pliable but tough eschar which moves freely over underlying tissues. There is prompt relief from pain while edema and oozing from the burn is definitely reduced. Infection is well controlled. This worked very well in the case of one patient whose extensive burns were grossly contaminated.

The Subcommittee on Burns of the National Research Council has condemned the use of tannic acid in any form for the first aid treatment of burns, and has discredited its use for the definitive treatment of third degree burns because the eschar tends to lock in infections, to devitalize tissue and to preclude the use of any other form of treatment. Serious toxic reactions, principally liver, have been reported where delayed or incomplete tanning permitted absorption of much tannic acid.

At Pearl Harbor, we used powdered sulfanilamide, 0.8 gm. in 100 cc. of mineral oil on fresh burns and powdered sulfanilamide or powdered sulfadiazine covered with compresses wet with normal saline or aqueous solution of azochloramid, on infected burns with good results. After the raid of December 7, 1941, we used the sulfadiazine in triethanolamine spray on a few cases. While satisfactory, we felt that the time and individual attention required precluded its use when any great number of severely burned patients are to be treated.

Recent reports from the Pacific combat areas state that burns were satisfactorily treated by applying dressings of fine mesh gauze impregnated with 6 per cent *sulfanilamide in equal parts* of cold cream and lanolin. Several layers of sterile gauze are applied over this, followed by cotton elastic compression bandages. Best results with infected burns were obtained from wet dressings of 2 per cent acetic acid.

Recently, the sodium salts of sulfathiazole and sulfadiazine have been successfully used by Fox and Tamarind in the secondary local treatment of extensive second and third degree burns, commencing about one week after injury. Fine mesh gauze impregnated with a 10 per cent suspension of sodium sulfathiazole in petrolatum is applied to burned surfaces and changed every two or three days as indicated. The granulating surfaces gradually presented a normal appearance and several patients were successfully skin grafted about six weeks after injury, using paper-thin Thiersch grafts. The wound surface is freely sprinkled with powdered sodium sulfadiazine immediately before application of grafts. The great advantage of this method is that the granulating surface is surgically clean and ready to receive grafts, while these grafts can be easily cut by average assistants, may be rapidly applied and the donor surface readily heals so that it may be used again soon. About 98 per cent of these grafts took.

The National Research Council, however, has now pronounced against the local use of the sulfa drugs on burns, stating that they are of no value and appear to increase infection rate. They also state that aquaphor bases have been found to be an undesirable type of application.

Largely based on a study of the clinical material afforded by burned patients at the recent Cocoanut Grove fire in Boston, the National Research Council now recommends simple boric ointment or vaseline dressings with fine mesh sterile gauze and a smooth, even compression bandage as local treatment for burns. Stockinette or some form of elastic bandage is more effective than a roller bandage. This is covered with a thick layer of gauze, absorbent cotton, cotton waste or cellulose. The Council has re-emphasized the imperative need of plasma, followed by whole blood in the stage of anemia. Sulfanilamide or sulfadiazine by mouth or intravenously has also been re-emphasized, together with adequate fluid intake to protect the kidneys.

A point specially emphasized is the critical judgment required in the administration of morphine in cases presenting symptoms of anoxia, hot fume lung injuries especially. Under these circumstances, it is considered that the dose of morphine should not exceed 1/4 gr.

The chief change in this treatment from the post-Pearl Harbor treatment is the discard of tannic acid and the sulfonamides for surface treatment. While the tannic acid treatment had been looked upon with increasing disfavor in both Great Britain and the United States for some time, local use of sulfonamides seems to have been dropped chiefly because they had apparently failed in their bactericidal effects. From reports I have read and what I have seen of the results obtained by Fox and Tamarind using the sodium salts of sulfadiazine and sulfathiazole in the local treatment of burns, however, I feel that the apparent failure of sulfonamides in this respect was due to their improper use, or use of unsuitable preparations, rather than inherent failure of the drugs themselves.

It is quite obvious that the ideal local treatment for extensive burns has yet to be found and I hope for early and further directives on this subject.*

SUMMARY

In the discussion of the treatment of wounds and burns, the effects of high velocity projectiles upon body tissues are stressed. Use of sodium salts of sulfadiazine or sulfathiazole is recommended to prevent infection.

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*"The opinions or assertions co[illegible] in [illegible]le are the private ones of the [illegible]." construed as official or refle[illegible] Navy Department or the

It is pointed out that wounds should not be closed at the first dressing, the exception being wounds of the face, where primary suture should be done. Emergency and hospital treatment of wounds of the head, chest, abdomen and extremities are thoroughly discussed.

The author emphasizes that use of tannic acid and local application of sulfa drugs in burns is now condemned by the Subcommittee on Burns of the National Research Council.

RÉSUMÉ

L'auteur discute le traitement des plaies et des brûlures dues à des projectiles de haute vélocité. L'emploi des sels de sodium de sulfadiazine ou de sulfathiazole est préconisé afin d'empêcher l'infection.

Les plaies de la figure exceptées, ces blessures ne seront pas suturées au premier pansement. Le traitement d'urgence et le traitement hospitalier des plaies de la tête, de la poitrine, de l'abdomen et des extremités est discuté minutieusement.

L'auteur déclare avec emphase que l'emploi de l'acidotannique et l'application locale des médicaments sulfa est condamné par le comité sur les brûlures du National Research Council.

SUMARIO

En la discusión del tratamiento de heridas y quemaduras, el efecto de la gran velocidad de los proyectiles en los tejidos es acentuado especialmente. El uso de las sales de soda, de sulfadiazina o de sulfatiazola son recomendadas para evitar infección.

Se advierte que las heridas no deben ser cerradas o suturadas en la primera atención y auxilio, con excepción de las heridas de la cara, en las que las suturas primarias deben ser practicadas. Emergencias y tratamiento en hospital de heridas de la cabeza, pecho, abdômen y extremidades son discutidas en extenso.

El autor llama la atención a que el uso de acido tánico y la aplicación local de las sulfas en quemaduras es desaprobado por el Sub-Comité de Quemaduras del Consejo Nacional de Investigación.

Выводы

При лечении ран и ожогов особое внимание уделяется действию снарядов большой скорости на ткани. Для предупреждения инфекции рекомендуется применение содовых солей сульфадиазина и сульфатиазола.

Автор допускает, как исключение, первичный шов при лицевых ранениях.

В статье *обсуждается вопрос о* срочном и госпитальном лечении ранений головы, груди, живота и конечностей.

Автор подчеркивает, что при ожогах применение сульфамидных препаратов в настоящее время Подкомитетом по Ожогам Национального Исследовательского Совета считается мало целесообразным.

Ninth Annual Assembly
United States Chapter
INTERNATIONAL COLLEGE OF SURGEONS
Benjamin Franklin Hotel, Philadelphia, Pa.
October 3-4-5, 1944.

Surgeons and Events

by

DR. MAX THOREK

LARREY, DOMINIQUE-JEAN (BARON)

(1766-1842)

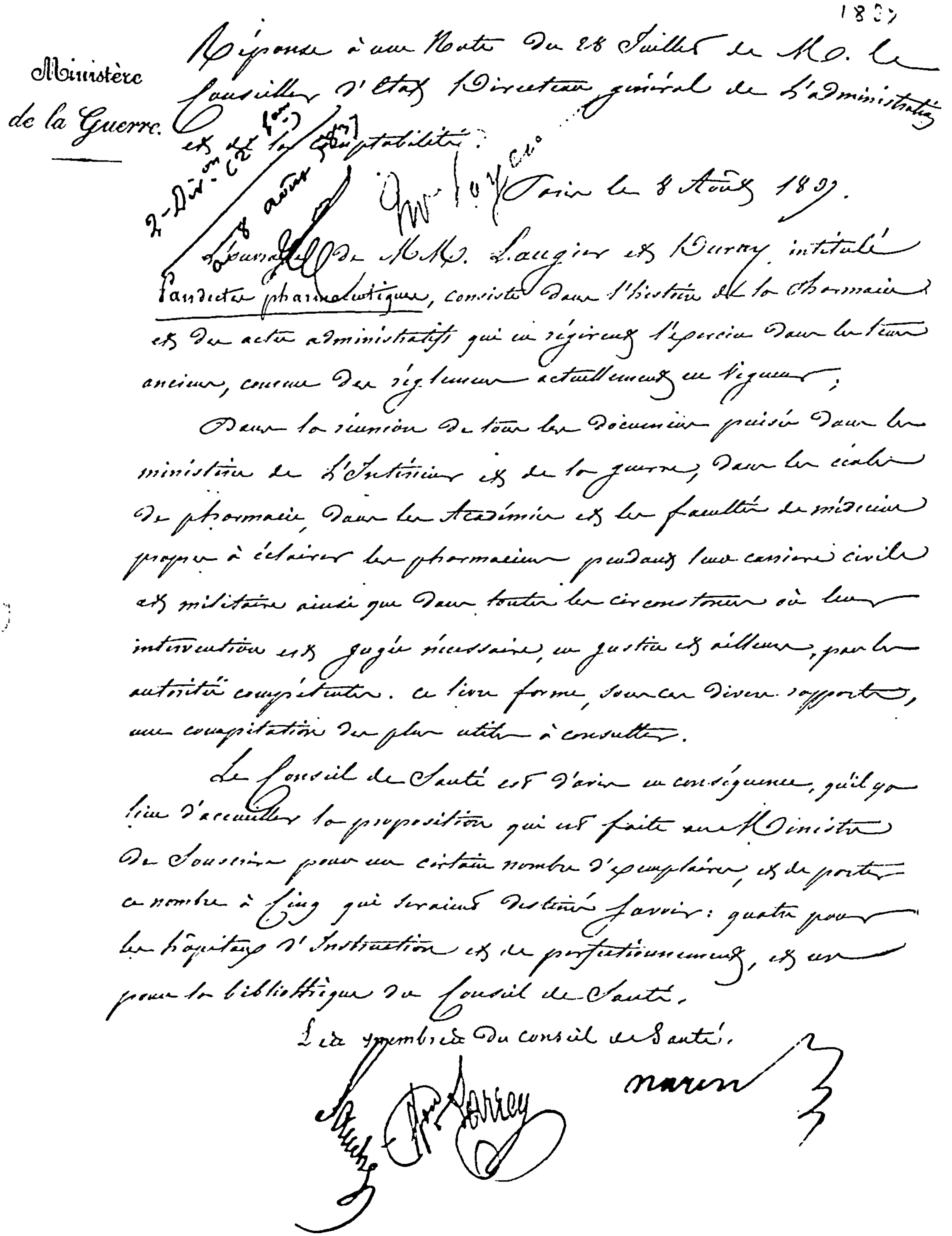
DOMINIQUE-JEAN LARREY, the greatest military surgeon of his time, was born at Beaudeau, near Bagnères-Adour (Hautes-Pyrénées) in 1766. He was educated by his mother and the parish priest, Abbé Grasset, who not only taught him the three R's, Greek and Latin, but imbued him with the principles of honor, duty, courage, an all-embracing tolerance and humanity for which he was respected by his fellow men during the remainder of his life. As a youth he entered the navy, serving his apprenticeship at Toulouse, where he studied surgery under his uncle Alexis. So great was his poverty that he walked all the way to Toulouse. In less than two years he won a competition for a sub-assistantship in anatomy.

In 1787 Larrey traveled to Paris, again on foot, since he had no money to go by post. In Paris his poverty forced him to give up his surgical studies. He entered the Royal Marine as an auxiliary-surgeon. His ability and leadership manifested themselves at Brest, where he organized the junior surgeons of the fleet into a study group and lectured to them in anatomy. During that same year he saw his first active service on the frigate *La Vigilante*. On his return to Paris he was made second surgeon-intern at the *Invalides*, and was so fortunate as to become the pupil of the famous Sabatier. For four years he worked in Paris hospitals.

In 1792 Larrey joined the Army of the Rhine as surgeon-major to the French stationed at Strasbourg. There he invented "flying ambulances" at the head of which he rescued the wounded from enemy batteries in the face of fire. Until his time the wounded lay on the field of battle until the fighting was over or were simply abandoned. Each ambulance had a personnel of 340. Each division boasted

Dominique-Jean Larrey, Surgeon-in- [illegible] ief to the armies of Napoleon (Fr [illegible] n e [illegible]) in the author's [illegible]

12 light carriag [illegible] b [illegible] two-wheelers



1837

Ministère
de la Guerre.

Réponse à une Note du 28 Juillet de M. le Conseiller d'État Directeur général de l'administration et de la Comptabilité.

2e Divon (2e bau)
8 août 1837

Paris le 8 Août 1837.

L'ouvrage de MM. Laugier et Duray intitulé Pandectes pharmaceutiques, consiste dans l'histoire de la Pharmacie et des actes administratifs qui en régissent l'exercice dans les temps anciens, comme des règlements actuellement en vigueur;

Dans la réunion de tous les documents puisés dans les ministères de l'Intérieur et de la guerre, dans les écoles de pharmacie, dans les Académies et les facultés de médecine propres à éclairer les pharmaciens pendant leur carrière civile et militaire ainsi que dans toutes les circonstances où leur intervention est jugée nécessaire, en justice et ailleurs, par les autorités compétentes. Ce livre forme, sous ces divers rapports, une compilation des plus utiles à consulter.

Le Conseil de Santé est d'avis en conséquence, qu'il y a lieu d'accueillir la proposition qui est faite au Ministre de souscrire pour un certain nombre d'exemplaires, et de porter ce nombre à cinq qui seraient destinés savoir: quatre pour les hôpitaux d'instruction et de perfectionnement, et un pour la bibliothèque du Conseil de Santé.

Les membres du conseil de Santé.

Bon Larrey

Facsimile of letter signed by Larrey and the members of the Council of Health recommending the purchase of *Pharmaceutical Pandects* for the Council's Library (From the original in the author's collection)

Blast Injuries*

COMMANDER BARTHOLOMEW W. HOGAN (MC), U.S.N.
WASHINGTON, D. C.

BLAST injuries, or violent disturbances set up by explosions, received very little attention until the Spanish Civil War. The bombings of London in the present war forced this type of injury upon the attention of the medical profession. Two types of blasts — atmospheric and underwater — have caused death and serious injury in today's warfare to our personnel on land, aboard ship and in the water.

An excellent clinical, surgical, pathologic and neurologic report was made by Capt. McMullin and his co-workers at the Naval Hospital, Pearl Harbor, in Hawaii. Recently Capt. Greaves and Dr. Corey made an exhaustive and excellent report following an experimental study of underwater concussions. I shall give you the results of these two reports and my knowledge of this type of injury from personal experiences in combat areas.

An atmospheric blast wave is essentially a wave of highly compressed air traveling at a rapid rate from the site of the explosion. Moving at great velocity, a high pressure wave may strike anything in its path with all the force and destructiveness of a solid body in motion. The velocity of the wave diminishes rapidly with the distance from the discharge. If caught within 3 to 10 feet of the explosion, the human body may be completely distintegrated by the blast wave alone and thus be destroyed without fragment or trace.

Blast injuries tend to be more serious and more complex in character in explosions occurring in a confined space as, for example, when an aerial bomb penetrates the deck and goes off in a crowded compartment.

When an aerial bomb or a high explosive, like a torpedo or a shell, discharges on board ship, primary injuries sustained by the ship's personnel are of three types: (1) external injuries due to high velocity fragments projected from the casement of the missile; (2) flash burns from combustion accompanying the explosion; and (3) blast injuries from the air pressure wave created by the discharge. Secondary injuries occur, caused by personnel being thrown against solid objects.

The blast that followed the torpedo hits which sank the aircraft-carrier *Wasp* killed every one in a V-shaped area from the site of the hits, just below the water line, upward covering four to five decks. Those near the limbs of the V suffered fractured legs, arms and mutilating injuries. Men standing in passageways near this area were seen to grab their abdomens, double over and collapse in death.

Blast injuries were due to [illegible] impa[illegible] of this wave of compres[illegible] by the explosion, as it impigned upon the body.

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*Presented at the Fourth International Assembly of the International College of Surgeons, New York City, June, 1943.

The blast wave is an exceedingly intense sound wave. Except very close to the charge, it travels at the speed of sound, 1180 feet per second in the air and 4800 feet per second in the water. It falls off in intensity, approximately as the square of the distance from the charge.

The positive or compression wave is followed by a negative or vacuum phase. Although the positive phase may be of very high magnitude, the negative pressure cannot exceed 15 pounds per square inch, since this would be a perfect vacuum.

ATMOSPHERIC BLAST

Air borne blast inflicts injury at relatively short distances. The pressure generated by very large charges of T.N.T. (1500 pounds) are not lethal, even at distances of around 100 feet. It must be borne in mind that I speak now of blasts alone and not the injury resulting from shrapnel, falling débris, walls, etc. The bomb case cracks, and in cracking is transformed into a multitude of flat fragments with sharp angular edges. As the case disintegrates, the rapidly expanding gases are no longer confined by the case; consequently, the fragments and the expanding gases move outward together at speeds up to 6000 feet per second. A wild race ensues between the fragments and the gases. The expanding gases cool, rapidly lose their velocity and are left by the fragments of the case which continue outward. Persons are picked up bodily and thrown against fixed objects or knocked to the ground.

A series of brain injuries, resulting from atmospheric blast, were reported from the Naval Hospital at Oakland, California, by Due and Abbott. The majority of the cases were marines from Guadalcanal, who had been in fox holes or running for cover when a bomb or shell hit close by, at times within ten feet. The marines had been knocked down and were unconscious. The period of unconsciousness varied from a few minutes to forty days. Several cases had been diagnosed as "war neurosis."

In none of these cases was there any evidence of external trauma. The physical findings were minimal, slight blurring of vision, impaired hearing and some disturbance of reflexes. The mental changes were prominent: personality changes, lethargic, apathetic and dull; and memory disturbances. In 40 per cent of the cases, the electroencephalogram indicated abnormal waves.

The pneumocephalogram proved diagnostic, showing typical signs of a subdural hemorrhage; a few were bilateral.

Trepanation showed 3-4 ounces of yellowish stain fluid and old clots. These were removed.

The mental and personality changes following the operation were quite remarkable. There was a return to normalcy and a rapid convalescence in all cases.

A victim of an atmospheric blast may suffer a rupture of the ear drums, pulmonary pathology, hemorrhage, circulatory collapse, shock and serious intestinal injury.

Quite frequently the blast injury is overshadowed at first by the fractured limb and external injuries from shell fragments or by the flash burn. At other times, there is no external evidence of injury although a serious internal injury to lungs and intestines is present.

About a year ago I was on duty in European waters. The British told me of another disabling effect on the crew of a ship being repeatedly bombed. Some men in an area of the ship away from the blast were found sitting around in an apathetic state, particularly marked among those having no special duties to perform, while increased concentration is needed among those having a job to do. The condition is characterized by mental torpor and complete apathy with regard to passing events. If these men got into a particular position, they could not summon the energy to change it, and should one of them trip or fall he might well drown in a few inches of oil or water because he was too apathetic to get up.

UNDERWATER BLAST

The *underwater* explosions are much more effective in producing injury due to the medium of transmission.

When an explosion takes place under water, the "shock front" is projected outward in all directions. This shock front or "A" wave is, of course, invisible, but it is this wave that produces injury. The thickness of this compression wave has been estimated at about 5 feet, so that the body of a man would be definitely engulfed in this area of high compression for a fraction of a millisecond.

The expanding gas, formed by the detonated charge, forms a spherical bubble which enlarges rapidly and may show numerous "pulsations" before it rises to the surface and produces the familiar column of spray. These pulsations set up waves which may be readily detected, but are not of sufficient force to produce injury, as far as is known. It is, then, the invisible compression or "shock front" which produces injury and not the more spectacular, expanding gas bubble or "B" wave.

The organs injured by blast wave have been shown to be those containing air. Thus the lungs and gastro-intestinal tract are those most frequently injured, the lungs being most vulnerable. It is believed the injury is caused by compression wave or blast. Injury to the lungs consists of interstitial hemorrhage from rupture of the alveolar epithelium and frank hemorrhage into the alveoli in more severe injury. The individual dies from asphyxia. Thoracic dullness, cyanosis, bloody sputum, rales are the signs of pulmonary blast injury, whether the blast be air or water borne.

Gastro-intestinal injury, so common in victims of underwater explosion, varies from areas of hemorrhage within the gut wall, which may be followed by necrosis and perforation, to frank and immediate perforation. Such injury results over areas of trapped gas within the lumen of the gut. The ileocecal region appears to be particularly vulnerable. A blast pressure of about 500 pounds per square inch is thought necessary to produce rupture of the intestinal wall. The mechanism is as follows: The compression wave travels through the body as though water, since the body is largely fluid. It strikes the intestine, compressing the gas within and, at the tissue-gas interface, it "shreds" or "blows off the surface" of the intestinal tissues, just as a depth charge "blows off the surface" of the water. As the compressed gas within the gut expands, it produces perforation of the gut wall, so weakened.

Thirty-five cases of immersion, or underwater blast injuries, were reported from the Naval Hospital, Pearl Harbor. These men had been admitted five days after the occurrence of the injury.

In general, their histories and physical findings were similar. The severity of their complaints was dependent on the distance they were from the source of the explosion; these distances varied from 100 to 150 feet in the more severely injured. The relative position in the water also modified or increased the symptoms.

With the blast, several experienced a lack of sensation in their legs and a feeling as if these [illegible] proportion to th[illegible] Others thought [illegible] the base of the scious or stunned. About 10 to 15 minutes after the explosion, they began to develop abdominal symptoms varying in degree from mild fleeting cramps to severe continuous abdominal pain. All developed a sense of thoracic compression. Many had hemoptysis.

The physical signs varied from slight to moderate dullness over both lungs and rales.

Abdominal signs were striking and varied from moderate generalized soreness and slight rigidity to marked abdominal distention and boardlike rigidity.

Of these 35 cases, 17 were ambulatory. X-ray evidence showed that these 17 had suffered pulmonary injury. Four had definite physical and x-ray evidence of moderately severe lung injury. The remaining 14 cases presented signs of shock and peritonitis—10 recovered, 4 died.

In none of these cases was there any external evidence of injury to the body.

My own experience in the southwest Pacific area last September showed me how devastating these underwater blasts can be to personnel. I saw a group of men swimming toward a destroyer, a depth charge went off, the water blew high in the air and the surrounding water churned up in great excitement, when it had quieted, there were very few bobbing heads seen and these were lifeless. I felt this concussion wave. It was like someone grabbing you around the waist, holding you very tight and suddenly releasing you. It seemed to press your stomach to the backbone and suddenly release it. The impulses and feeling coming through the water were something like the sound of a machine gun firing in the distance. This was apparently due to the pulsating gas bubble producing a series of compressing and expanding pressure waves.

The therapy for survivors of blast injuries to date has been conservative—counteract shock, maintain adequate intake of fluids, colloids and electrolytes with transfusions of plasma, and glucose and saline solution.

Interdict all medication, water and nourishment by mouth, give morphine for pain and restlessness, reduce intra-intestinal pressure by continuous Wangensteen suction, preferably with a Miller-Abbott tube, administer sulfa drugs intravenously, supply oxygen generously, use whole blood transfusions if anemic or if patient shows evidence of intra-abdominal hemorrhage. Attend to vitamin requirements. Operation should not be advised unless there is a definite indication. Do not operate if the patient is seen several days after perforation and is dying from peritonitis. Recent perforation, gangrene of a segment of bowel, and abscess formation demand surgical intervention.

CONDITIONS RESULTING FROM BLAST INJURIES

I shall conclude by summing up the conditions reported resulting from blast injuries clinically and experimentally:

Many organs and structures of the body have been reported to be injured by "blast" and it is indeed difficult to evaluate such reports. Due to the fact that distance from charge, magnitude of charge, presence of missiles, projection of the victim against solid structures, are all but impossible to ascertain.

"War neurosis" and psychotic interludes have been attributed to exposure to concussions. Whether such conditions have organic bases in an injured cortex is not known. But evidence is existent showing that such may indeed be the case.

Subdural hematomas have been described, but whether such arise from "blast" alone remains in doubt.

Optic injuries, corneal and retinal hemorrhage as well as retinal separation, presence of exudates, have all been attributed to the effect of "blast," but have never been seen, grossly, in animal experimentation.

Injury to the ears is, of course, common. It is interesting to note that we do not as yet know at what pressure the human tympanum is ruptured. It has been stated in ordnance publications that "around 7 pounds per square inch is all that a man can be expected to stand."

Underwater concussion may cause hemorrhage within any of the sinuses, sphenoidal as well as malar and frontal. Apparently injury to these sinuses may be of such violence as to fracture the bone within which it is contained.

Teeth have been reported to have been blown out by "blast" but flying missiles or violent displacement of the body may here be highly suspect.

Pulmonary injury has been described. So characteristic are these lesions, and so vulnerable are the lungs to concussion that the pathologic picture has become recognized in medical literature as "blast lung."

The gastro-intestinal tract may present areas of hemorrhage, or frank perforation throughout its length. The fundus of the stomach is prone to puncture, probably due to the presence of air in this location. It has been shown experimentally that only those portions of the gut containing gas will perforate when exposed to underwater explosions.

It has been commonly stated that injury to the testes, rupture of the G.I. tract due to the entrance of water into the rectum and injury to solid viscera commonly result from exposure to underwater blast. No such injuries have been seen in extensive experiments on animals, either in gross specimens or upon macroscopic examination.

Fractures are supposedly due to the violent displacement of the limbs against some hard object rather than due to blast *per se.* Thus os calcis fracture, so frequently encountered, is brought about by transmitted shock through the plates of a ship rather than by "blast." The same is true of patellar and other fractures frequently described. The effect of blast upon hulls and other large targets may thus produce injury secondarily.

Protection. Any armor or device which *deflects* or cushions the impact of the blast wave will serve as a means of protection. To date, cushioning substances such as kapok or sponge rubber offer most promise. They have the disadvantage of bulkiness and warmth when incorporated into a garment, but it is thought that these difficulties are being overcome.

It should be remembered that as regards underwater blast, only submerged portions of the body may be injured. Thus it behooves the individual who finds himself in the water where explosions may be imminent to raise the chest and abdomen above the surface as much as he is able by utilizing floating débris, or any object which will support him.

Since the blast wave falls off in intensity very rapidly, every effort should be made to swim as far away from a source of concussion as possible, even a few yards theoretically constituting the difference between safety and fatal injury.

The intensity of the concussion wave generated by explosions in air is greatly diminished in depressions, trenches, foxholes, so that "hitting the dirt" is a protection from blast as well as from the resulting shrapnel.*

SUMMARY

Conditions resulting from atmospheric and underwater blast injuries as reported are: organic injuries, "war

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*The opinions or asserti
are the private ones of
construed as official or
Navy Department or th

sis," subdural hematomas, optic injuries, aural injuries, hemorrhage within the sinuses, pulmonary injuries, gastro-intestinal tract hemorrhage or perforation, injury to the testes, rupture of the gastro-intestinal tract and fractures.

The pneumocephalogram proved diagnostic, indicating abnormal waves in 40 per cent of the cases, and showing typical signs of a subdural hemorrhage.

Underwater blast injuries are due chiefly to the medium of transmission. Among 35 cases admitted to the hospital five days after Pearl Harbor, severity of complaints depended on the distance from the explosion; 17 cases were ambulatory; of the remaining 14 cases of shock and peritonitis, 4 died.

Conservative treatment of blast injuries is advocated.

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RÉSUMÉ

Les explosions atmosphériques et celles qui surviennent sous la surface de l'eau sont classifiées sous différentes rubriques: lésions organiques, névroses de guerre, hématome sous-dural, lésions du nerf optique, lésions de l'appareil auditif, hémorrhagies dans les sinus, lésions pulmonaires, gastro-intestinales, lésions de l'appareil genito-urinaire, fractures, etc.

L'electro-encéphalogramme fut d'une grande valeur diagnostique dans 40 pour cent des cas, et le pneumo-encéphalogramme décéla des signes typiques d'hémorrhagie sous-durale.

Les blessures résultant d'explosions sous eau sont dues principalement à la transmission de vibrations. Sur 35 cas admis à l'hôpital cinq jours après Pearl Harbor, la sévérité des symptômes était en rapport avec la distance de l'explosion; 17 des cas étaient ambulants. Il y eut 4 décès de choc et de péritonite.

L'auteur recommande que les sinistres d'explosion soient traités conservativement.

SUMARIO

Condiciones resultantes de explosiones atmosféricas y submarinas son citadas, como siguen: daños orgánicos, "neurosis de guerra," hematomas subdurales (submeningeales), daños ópticos, o al oído, hemorragias entre los sinuses, daños pulmonares, hemorragias o perforaciones gastro-intestinales, daños a los testículos, ruptura gastro-intestinales y fracturas.

El electroencefalogram ha demostrado datos diagnósticos, indicando olas abnormales en 40 por ciento de los casos; el neumocefalogram demostrando signos típicos de hemorragia submeningeal.

Daños por explosiones submarinas son causadas principalmente por el medio de transmisión. En 35 casos admitidos al hospital cinco días después de Pearl Harbor, la severidad de los daños depende de la distancia de la explosión; 17 casos fueron ambulantes y de los 14 casos restantes de choque y de peritonitis, 4 murieron.

Un tratamiento conservativo es recomendado en daños explosivos.

Выводы

В результате атмосферных и подводных взрывных волн наблюдаются следующие повреждения; органические повреждения, "военные неврозы", субдуральные гематомы, повреждение глаз, ушей, синусовые геморрагии, легочные повреждения, геморрагии и перфорации желудочно-кишечного тракта, нарушение вкуса, различные повреждения желудочно-кишечного тракта до разрывов его.

Диагностика, на основании энцефалограм дает в 40% случаев типичные признаки субдуральной геморрагии.

Повреждения, наблюдающиеся при взрывах морских судов и, в частности, подводных лодок являются следствием давления водяной волны. На 35 больных, принятых в госпиталь на пятый день после военных операций в Пирл Харбор, тяжесть состояния больных зависела от разстояния взрыва; из них 17 больных были амбулаторными, 14 находились в состоянии шока и имели явления перитонита и 14 из них умерли.

Автор предлагает консервативное лечение этих повреждений.

DOMINIQUE-JEAN LARREY

(Continued from page 191)

were equipped with easy springs and furnished with mattresses.

In charge of the military hospital at Toulon, he founded a school of surgery and anatomy there; then he was transferred to military hospitals at Antibes and Nice. Following several campaigns he became professor at the school of Medicine and Military Surgery at Val-de-Grâce.

At Napoleon's bidding, Larrey accompanied him to Italy in 1796; there he visited the principal medical schools. Then he became surgeon-in-chief to the Army of Egypt. Wounded at St. Jean d'Acre, adversity dogged Larrey's footsteps at Alexandria, where he was forced to kill his horses to supply his wounded patients with food. It was during the retreat through Syria, where the troops suffered greatly from blow flies, that Larrey first observed the beneficial effects of maggots in wounds. "These are produced," he said, "in a few hours and increase so rapidly that in the course of a night they grow to the size of a small quill pen. They caused an unpleasant pruritus, but suppuration was greatly accelerated, then stopped entirely. Also the sloughs fell off, and the wounds healed very rapidly, thus apparently shortening Nature's work. As the sloughs were discarded, the maggots were killed with a strong decoction of rue containing a little sage."

In recognition for his services in these campaigns, Larrey was made an officer of the Legion of Honor in 1804 and the following year chief surgeon of the Imperial Guard. He served in campaigns in Germany and Spain, and after the battle of Wagram, Napoleon made him a Baron of the Empire. In 1812 Larrey became first surgeon of the *Grande Armée,* taking part in 60 battles and 400 engagements. He was three times wounded, and performed as many as 200 amputations in twenty-four hours at Borodino. During the campaign against Prussia in 1812, he established his hospital headquarters in Berlin where he lectured to surgeons of the army and the junior surgeons of the Berlin Academy, forming a lasting friendship with General Goercke.

Larrey's valor and devotion throughout the Russian campaign won universal admiration. He visited and was impressed by hospitals in Moscow. Toward the end of the retreat from Russia. Larrey, half-frozen and exhausted, was kept alive by his comrades, even officers helping carry him through the snow and through boiling torrents. They gave him
the last of
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Mediastinal Wounds Caused by Explosives*

EMIN ERKUL, M.D., F.I.C.S. (Hon.)
ISTANBUL, TURKEY

WITH the single exception of a fatal sword-wound of the skull, the thousands of wounds I have treated during the course of a long military career in the Balkan War, First World War and War of Turkish Independence were caused by firearms. Only after World War II will we be able to complete studies undertaken to determine the nature, kinds and treatment of wounds caused by high-explosive bombs carried by planes, launched from flame-projecting machines or resulting from poisonous gases.

A case of a wound of the anterior mediastinum caused by the explosion of a hand grenade is presented below.

CASE REPORT

In 1920, during the War of Turkish Independence, a militiaman was brought to the Military Hospital at Eskisehir with a hole about 1 cm. in diameter on the median line and at the level of the point where the manubrium meets the gladiolus. There was a purulent discharge, which increased when the patient coughed or breathed deeply. Swelling and depression of the skin surrounding the wound was noted. Clinical examination of the patient had to suffice as we lacked roentgen-ray or other scientific apparatus. The general condition of the patient was good, despite the seriousness of the situation. The pulse was slightly accelerated; the temperature, 37 8 degrees centigrade.

I widened the wound both at the top and bottom; this afforded freer egress to the purulent discharge. On closer examination I found that we were at the anterior mediastinum. We could easily hear the heart sounds and pulsations of the blood vessels. As the insertion of the pleura into the body of the sternum was ruptured, the appearance was that observed during forced inspiration and expiration.

Having cleaned the surface of the wound with especial care and having left a light gauze pack, treatment was continued with the patient lying on his face, after fortifying him with subcutaneous and intravenous injections of serum.

It was surprising that despite the purulent discharge, no complications followed. The cellular tissue to the abdomen or the posterior mediastinum remained unaffected, although the patient had reached the hospital many days after he was wounded, and in spite of excessive suppuration of the wound. This happy condition may be attributed to the extraordinarily strong resistance of the patient.

After two weeks the discharge ceased almost completely, and granulations began to appear. With the increase of the granulations, the exposed portion of the heart and the blood vessels leading to and from the heart began to disappear from view. The field took on the form of a single mass of granulations beating in unison. By the end of the third month with the aid of a few skin grafts, epithelization of the wound had taken place, and a cavity large enough to hold an egg was formed on the breast of the patient. This cavity was, of course, pulsatile.

This condition may be considered a surgical oddity. Many others of similar nature may be reported.

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*[illegible] International Assembly [illegible] College of Surgeons, New York, [illegible]

RÉSUMÉ

L'auteur discute les plaies de médiastin causées par les explosifs. Il rapporte le cas d'un malade qui se rétablit complètement après débridement de la plaie et injections de sérum, malgré un retard de plusieurs jours avant l'emploi du traitement ci-dessus cité.

SUMARIO

Heridas del mediastino, causadas por explosivos son discutidas con presentación de un caso en que el paciente dañado restableció y sanó, después de débridement de la herida e inyecciones de suero, aún cuando el tratamiento fué demorado por muchos días, después de un solo exámen físico y clínico.

Выводы

Обсуждается вопрос о ранениях средостения, причиняемых взрывами. Приводится случай, когда больной поправился после debridement раны и введения сыворотки, несмотря на позднее лечение, в период которого проводилось только клиническое исследование.

DOMINIQUE-JEAN LARREY

(Continued from page 199)

tomical museum and see the specimens of nerve dissections prepared by Halle. There he met Meckel's son.

At Waterloo, Larrey's horse was shot from under him and he fell unconscious from sabre cuts. A prisoner of war of Field Marshall von Blücher, he was about to be shot when he was recognized by one of the Prussian doctors who had heard him lecture in Berlin. Larrey's build was that of a typical Frenchman of the *Midi,* short, stocky, round-headed; he had a ruddy complexion and enormous vitality and physical strength. His resemblance to Napoleon was striking; in fact, at Waterloo, he had difficulty in convincing the Prussians he was not the Emperor. Larrey saved the life of von Blücher's son, and the great general's gratitude manifested itself when he had Larrey taken to Brussels and hospitalized until his wounds had healed.

After Napoleon's downfall Larrey was deprived of his honors, his pensions and most of his personal funds; some of these were later returned to him, but he existed in the meantime on the proceeds of a meager private practice. Even under these circumstances he refused an opportunity to go to Brazil as surgeon-general of Dom Pedro, and a similar offer from the Czar of Russia.

He visited England in 1826, where he studied and observed in various hospitals. On his return he was given back his post of Medical Director, which he retained until his death.

Larrey's outstanding reputation was responsible for his appointment as chief surgeon to the Royal Guards following the Restoration. He was also chosen one of the first members of the Academy of Medicine. During his later years Larrey was the author of a number of works on military surgery. He died in Lyons in 1842.

Larrey's first article, published in 1802, "Surgical Account of the Army of the East," was dedicated to Napoleon. His most interesting work is contained in the four volumes of his "Mémoires de Médecine Militaire" (1812-17), which contain the first account of "trench-foot"

Tratamiento Electroquirúrgico del Cáncer del Recto*

(Electrosurgical Treatment of Carcinoma of the Rectum)

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SUMMARY

The authors conclude from their experience in the treatment of rectal carcinoma, that there can be no doubt that electrosurgery is the best method for the treatment of rectal carcinoma. With this method, five-year cures were obtained in 50 per cent of the 261 patients operated on by them, with a 2 per cent surgical mortality.

DURANTE muchos años han existido controversias sobre cuál era el método ideal en el tratamiento radical de los tumores malignos del recto, por lo cual la gran profusión de artículos importantes sobre el tema que existe en la literatura médica, por lo que haremos una pequeña síntesis histórica.

Treinta años atrás, no satisfechos del alto porcentaje de recidivas, como consecuencia de la extirpación del recto por vía baja en esa época de elección para la gran mayoría de los cirujanos de las distintas escuelas, la inglesa representada por Miles y la francesa por Quénu, se dieron a la labor de desarrollar y perfeccionar una nueva técnica: el método combinado abdóminoperineal.

El desarrollo y perfeccionamiento de esta difícil y complicada operación demandó un lapso largo de tiempo y, fuerza es confesarlo, costó la vida de muchos pacientes, aún en casos que, dado la precocidad del diagnóstico, se debía esperar una curación definitiva o temporaria: de lo que resulta que muchos cirujanos, conscientes de su deber, no se animaran a someter a sus pacientes a un riesgo tan grande que implicaba el método abdóminoperineal.

Estos hechos estimularon a Lockhart-Mummery, en Inglaterra, a Hochenegg, y a Mandl, su discípulo, en Viena, a Voelker y Lexer, en Alemania, a perfeccionar la vía sacroperineal, la que indicaron en la mayoría de los casos, reservando la vía abdóminoperineal a aquellos casos muy favorables que en la práctica son la excepción.

La práctica en gran escala de la vía baja, unida al perfeccionamiento de los métodos anestésicos, al empleo sistemático de la electrocirujía, como también de suma importancia, la experiencia aumentada por la gran cantidad de casos observados y operados, ha traído como corolario una disminución grande de la mortalidad operatorio y un aumento apreciable de las curaciones definitivas.

Hecho éste pequeño exordio, nos concretaremos en forma suscinta a dar nuestra opinión sobre el carcinoma rectal, su patalogía y tratamiento de elección.

El carcinoma rectal es en su comienzo una enfermedad local, factible de curarse en éste estadío radicalmente con una mortalidad relativamente poco importante, pero que en su faz final se caracteriza por sus trastornos penosos, cuyos desastrosos efectos se puede prevenir cuando se recurre al especializado, puesto que el carcinoma rectal se desarrolla, por lo general, lentamente, pierde tardíamente su operabilidad y produce precozmente sufrimientos que se caracterizan por su tenacidad, que inducen al enfermo a consultar al médico general.

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*[illegible] Third International Assembly of the [illegible] of Surgeons held in Mexico City, Aug. [illegible]

Es, pues, importante definir las indicaciones y contraindicaciones del tratamiento quirúrgico que es, en nuestra opinión, la única radical curativa y lo haremos basándonos en nuestro criterio personal.

En la calificación de operabilidad, hay que distinguir la capacidad operatoria de orden general y local. Las contraindicaciones del método quirúrgico provocadas por causas de orden general son precisas e indiscutidas, colocándose en primer término a fallas del aparato circulatorio, la senectud, trastornos del metabolismo, discrasias sanguíneas, etc.

En cuanto a los contraindicaciones de orden local, es decir, el estadío en sí, del proceso, son muy variables y están de acuerdo con el criterio del cirujano consultado, y las precisaremos más adelante en forma terminante. Pero, queremos, ante todo, recalcar este hecho, que no existe siempre relación entre el estado general del paciente y la extensión local del proceso, que con mal estado general se presentan a veces lesiones fácilmente extirpables, como también la inversa, con buen estado general lesiones de tal extensión que sobrepasan el límite de la operabilidad.

Lo importante en la práctica es la coexistencia de un buen estado general que permita extender los límites de operabilidad local. Fijaremos el límite máximo en aquellas condiciones que sea permitido liberar al enfermo hasta el fin de sus días de su lesión local, haciendo caso omiso de las metástasis alejadas, pues estamos en perfecto acuerdo con Goetze, por haberlo observado desgraciadamente muchas veces en nuestra práctica, que no es lo mismo para el canceroso rectal fallecer a causa de una metástasis lejana, generalmente hepática, que tiene una evolución silenciosa que con los dolores y sufrimientos que acarrea la evolución normal y letal del carcinoma que no son aliviados por los medios paliativos, sean médicos o quirúrgicos.

Aclarado éste concepto, se comprenderá que cuando la mínima esperanza de liberar al enfermo de su lesión esté indicada, no dejaremos de hacerlo y, si bien es cierto que nuestra mortalidad global será aumentada, también será aumentado el número de las indicaciones operatorias.

Creemos que éste criterio es más humanitario que él de aquellos cirujanos que seleccionan los casos e indican tan sólo el tratamiento quirúrgico cuando es dable esperar una curación definitiva; procediendo así, creemos sinceramente hacer obra, que si se redujo en muchos casos a curaciones relativas, hoy ya nuestros resultados han ido mejorando obteniendo un mayor porcentaje de curaciones definitivas.

De esto, se deduce la importancia que en el preoperatorio tienen las indicaciones tendientes a mejorar el estado general para sobrellevar una tan importante intervención y apreciar en la forma más exacta posible la evolución del proceso.

Nosotros creemos que en esta localización, a semejanza de otras localizaciones neoplásicas—nos referimos a la del cuello del útero—, la exploración electro-quirúrgica es el medio más claro y más seguro para fijar los límites de operabilidad, método que en el cáncer rectal ha venido a ser facilitado por dos hechos de importancia: por el desarrollo de la operación sacral ampliada según Goetze, y, sobre todo y ante todo, por el progreso que el procedimiento electro-quirúrgico ha resultado merced a los esfuerzos de mi maestra el profesor Franz Keysser.

La exploración electro-quirúrgica nos permitirá, sin el menor peligro de siembra, comprobar "de visu" la lesión y operar una cantidad de enfermos cuya contraindicación operatoria dada por otros cirujanos era principalmente la fijeza o enquistamiento que en la pequeña pelvis tenía la tumoración rectal y que la exploración electro-quirúrgica, con la que se puede hacer una verdadera laparotomía exploradora posterior, nos permitirá comprobar el hecho que estas adherencias son sólo inflamatorias y que poco se les puede temer cuando en realidad en el método sacral el coxis y el sacro deben ser sacrificados en el acto operatorio.

Estas adherencias posteriores liberadas, extirpado el sacro y el coxis, nos permitirá darnos cuento exactamente del sitio, tamaño y altura del tumor y fijar los límites de nuestro pronóstico operatorio, haciendo ya una operación radical o una intervención paliativa, y en el mínimo de los casos de lesiones muy altamente situadas, con mal estado general, renunciar al procedimiento quirúrgico y encuadrarlas exclusivamente en el tratamiento médico.

En lo referente a la situación diremos, en las formas ampulares bajas y anoperineales, la vía sacra será la vía de elección con ciertas variantes que comentaremos oportunamente.

Cuando el tumor esté situado enteramente arriba del repliegue peritoneal y exista un márgen razonable de tejido sano en el extremo inferior del recto, no hay argumento basado en patología para no dejar el segmento anorectal.

En estos casos, deben tratarse de preferencia por el método de Hartmann que tiene un bajo porcentaje de mortalidad y todas las ventajas de la operación combinada, es decir, de eliminar los linfáticos y los ganglios situados a lo largo del mesenterio inferior. Es una operación más rápida que la abdominoperineal y se evita en comparación con la operación sacra los inconvenientes de una gran herida que requiere suma y diaria atención durante varias semanas para curar. Se evitan igualmente los peligros de una infección urinaria como también de una hemorragia secundaria o de sepsis local, acortándose con el uso de la operación de Hartmann la convalescencia en por lo menos la mitad.

De menor importancia es el tamaño de la lesión, pues aunque el aumento traiga aparejada la formación de metástasis locales, ella no implica en nada ni desvirtúa en lo más mínimo la capacidad radical operatoria.

La exploración quirúrgica, igualmente permite palpar directamente la tumoración, y sobre este encuentro palpatorio, fundar el pronóstico y la conducta a seguir. Cuando el tumor no se palpe o se palpe con dificultad, significará que es un caso de buen pronóstico operatorio; cuando se palpa habrá que aclarar bien si lo que se palpa es el tumor mismo o la propagación en el tejido retro-rectal en forma de cono, que hemos descrito al hablar del crecimiento local.

La existencia de este cono, aunque significa con seguridad la metastatización local, no impide la capacidad operatoria local.

Otro punto a fijar es cuando abierta la cavidad peritoneal se comprueba la perforación del carcinoma en el peritoneo. De ella hemos hablado igualmente en el capítulo de crecimiento local y considerando análogo al crecimiento en forma de cono en el tejido periproctal, y aunque su encuentro signifique una evolución avanzada del proceso, la operación radical se podrá efectuar igualmente.

La comprobación de lesiones en la próstata en el hombre y del útero y vagina en la mujer, no contraindican la operación radical. Pero sí cuando en el examen por cistoscopía se compruebe la perforación del tumor en la vejiga, hecho de excepción y no observado clínicamente nunca en nuestro material, el caso será catalogado entre los inoperables.

Aunque la perforación peritoneal es un signo absolutamente seguro para la malignidad local del carcinoma, nosotros tenemos una observación (ficha 57774), donde la necropsia efectuada en el Instituto por uno de nosotros no reveló ninguna metástasis alejada y la enferma llegó al "exitus letalis" por degeneración grasa aguda del hígado, comprobada histológicamente.

Ahora bien, cuando al abrir el peritoneo se observa la presencia de líquido y siembra peritoneal en el peritoneo vecino, debe considerarse el caso como inoperable, no sólo radicalmente sino paliativamente, pues con seguridad la metastización se extiende por todo el peritoneo que cubre la cavidad abdominal.

Estos casos, como los que invaden la vejiga o que presentan una generalización ósea, deben ser clasificados como francamente inoperables y no tratarse por ningún medio terapéutico local, que no hará sino agravar su generalización: son los casos en que debe recurrirse exclusivamente al tratamiento médico.

Juzgada la capacidad operatoria local exteriorizaremos que el método quirúrgico, de acuerdo con la indicación que corresponda, cuenta con dos procedimientos, el radical y el paliativo.

Cuando anatómicamente sea [illegible] método radical, se indicará la [illegible] sacral ampliada según Goetze [illegible] método que reune las condiciones [illegible] pensables para considerarlo [illegible] gún el estado actual de nuestros [illegible] mientos; pero para indicar [illegible] que el enfermo tenga una [illegible] operatoria, es necesario, mejor dicho es imprescindible, que el paciente no tenga contraindicaciones de orden general, sobre todo circulatorias, tanto centrales como periféricas, que no permitirán el éxito de esta bien reglada pero seria intervención.

Será pues necesario el examen somático y funcional del paciente, lo que nosotros podemos efectuar en forma sumamente eficiente, debido a la colaboración que en el trabajo existe en el Instituto de Medicina Experimental para el Estudio y Tratamiento del Cáncer. Todo enfermo que debe sufrir esta grave intervención, es examinado por el clínico, que comparte con su opinión la responsabilidad de la indicación y la basa sobre todo en el estado del aparato cardiovascular, que es el que produce la mayor parte de los fracasos operatorios.

A continuación [illegible]

pensados, porque no se sabe si estos enfermos van a conservar su equilibrio hemodérmico al ser sometidos a los distintos actos operatorios.

"La existencia de una lesión cardíaca no contraindica por sí sola la intervención quirúrgica, dependiendo ésta más bien del estado funcional de dicho sistema." Es por esto que para tener la seguridad operatoria es menester someterlos previamente a los exámenes funcionales clásicos, no sólo en reposo sino también en actividad.

Son principalmente las intervenciones de vientre, laparotomías, en especial las llevadas a cabo sobre el sector genital (histerectomías, extirpación de quistes, fibromas, extirpación del recto, etc.), porque son ellas las que determinan con mayor frecuencia los estados de schoc y colapso cardiovascular. Por consiguiente es indispensable tener un criterio formado sobre la capacidad de trabajo y de reserva funcional del aparto circulatorio para evitar en lo posible las desagradables sorpresas que suelen epilogar una intervención correctamente practicada.

No existe en la actualidad ni datos anamnésicos ni pruebas funcionales que aseguren en los candidatos la inocuidad de una intervención quirúrgica. Sin embargo, creemos de utilidad tomar como base su comportamiento durante las tareas diarias y su reacción a las pruebas funcionales clásicas. Ello nos dará la base para juzgar su capacidad funcional, no sólo en reposo sino también en actividad.

Al respecto, el Comité de prevención y ayuda al cardíaco, de los Estados Unidos, en el año 1923, propuso la clasificación siguiente, y la cual fué aprobada por The American Heart Association:

1^{ra} clase: Pacientes con lesiones cardiovasculares, capaces de efectuar su actividad física ordinaria, sin molestias.

2^{da} clase: Pacientes con lesiones orgánicas, incapaces de efectuar sus tareas ordinarias sin molestias. Esta clase se subdivide en dos grupos: (1) con actividad ligeramente limitada, y (2) con actividad grandemente limitada.

3^{ra} clase: Pacientes con lesiones orgánicas o con signos o síntomas de insuficiencia cardíaca e incapaces de cualquier actividad física sin molestias.

Aunque esta clasificación no ha sido hecha con fines quirúrgicos y se basa únicamente en la capacidad funcional espontánea profesional y sin tener en cuenta la lesión cardiovascular ni su pronóstico, creemos que ella, unida al resultado de las pruebas funcionales clásicas, puede ser una buena guía para la selección quirúrgica.

L. H. Schmid, en su publicación titulada: "Die postoperative Reaktion des Kreislaufes, besonders nach Laparotomien," en Deutsche Zeitschrift für Chirurgie, compara el trauma operatorio "a un trabajo corporal poderoso llevado más allá de su límite fisiológica de fatiga."

Aceptado este concepto, sólo restaría elegir un test de trabajo y un método seguro de medida.

Los métodos y procedimientos que poseemos en la actualidad par el estudio de la capacidad funcional del aparato cardiovascular no son lo suficientemente exactos y por ello no dan la seguridad que exige el riesgo operatorio.

Sin embargo, creemos que la prueba clásica de Lian y el volumen-minuto circulatorio, efectuados antes y después de un trabajo o ejercicio "llevado al límite de fatiga," son los mejores índices de la capacidad y reservas funcionales, a pesar de las dificultades de su práctica.

Como ya lo hemos dicho anteriormente, las manifestaciones de schoc y de colapso constituyen el mayor peligro durante y después del acto operatorio, y ellas pueden ser provocadas por la anestesia, trauma, manipulaciones y absorción de substancias protéicas y lípicas durante y después de la intervención.

Eppinger clasifica los colapsos cardiovasculares en "hemodinámicos" y "protoplasmáticos." Los primeros dependen de la disminución del volumen-minuto circulatorio, provocado por una disminución de la presión venosa, velocidad sanguínea y por consiguiente disminución del aporte sanguineo al corazón; los segundos, son determinados por un aumento exagerado de la permeabilidad celular a los elementos del plasma sanguíneo, por lo cual hay una exósmosis vascular, con concentración sanguínea; "hay fuga de plasma sanguíneo fuera de los vasos."

Ambos pueden ser de origen central o periférico, orgánicos o funcionales. Su conocimiento es de suma y gran importancia, por cuanto señalan las indicaciones terapéuticas a seguir. No existe en realidad ningún signo o síntoma capaz de diferenciarlos exactamente. Eppinger propone la observación siguiente: "el estado de repleción venosa periférica." En efecto, en los colapsos hemodinámicos se observan las venas periféricas hinchadas y repletas de sangre, mientras que en los colapsos protoplasmáticos las venas están exangües y aplastadas; tanto es así que ello representa una dificultad seria para las transfusiones o inyecciones endovenosas. Muchas veces, ambos tipos se combinan, dando una forma mixta hemodinámica-protoplasmática, lo cual debe tenerse también muy en cuenta.

Antes de entrar a tratar la terapia de estos estados, creemos necesario decir dos palabras referentes a su profilaxia, y aunque al respecto las opiniones están muy divididas, cuando se trata de los fármacos a procedimientos a seguir. Nunca estará de más tonificar y aumentar la capacidad funcional de un sistema cuyo requerimiento pone a prueba de una manera brusca su resistencia y reacción. Cuando se trata de corazones sanos bastan los exámenes generales y los datos corrientes, pero cuando existen lesiones o trastornos funcionales, es necesario y hasta obligatorio, disminuirlas, procurando llevar al máximo su capacidad de trabajo. Para ello muchos son los procedimientos y fármacos empleados: Gimnasia respiratoria, masajes en los miembros, deshidratación y disminución de peso en los gordos, etc., tonificación cardiovascular a base de glucósidos tipo digital, suero glucosado e insulina y diuréticos, etc. La digitalización previa ha sido muy discutida y a pesar de ella no se tiene todavía una regla fija y aceptada por todos. Creemos que tratándose de corazones lesionadas y siendo la digital el mejor y más seguro medicamento para su tonificación, puede ser empleado sistemáticamente a dosis medianas o pequeñas de ½ a 1 unidad gato, 4 a 5 días antes de la operación. Con ello se logra tonificar el órgano y sin molestar ninguna de sus propiedades, por cuanto dichas dosis están alejadas de las dosis de saturación, las únicas dañosas y de dudosa utilidad.

El suero glucosado hipertónico y la insulina, si el metabolismo glúcido así lo permite, constituye un buen método profiláctico por cuanto desintoxica, aumenta los depósitos de glucógeno, aumentando así las resistencias del aparato cardiovascular y retículo endotelial, a las acciones dañosas de los anestésicos, reflejos y absorción de proteínas durante el trauma operatorio.

El sistema nervioso, que tanta influencia tiene en el desencadenamiento del colapso, debe ser también tomado en cuenta, bajando su excitabilidad antes del momento operatorio con morfina-escopolamina, etc. Si a pesar de ello el estado de colapso se produce, la [illegible] a seguirse debe estar [illegible] clínica del colapso [illegible] y de origen [illegible] emplearán todos los cardiotónicos y analépticos cardio-respiratorios conocidos y digital, ouabaína, alcanfor, cardiazol, coramina, hexeton, cafeína, esparteína, etc.

Si es de origen vascular-periférico y con disminución de cantidad de sangre circulante: suero glucosado endovenoso 200 a 400 gramos, adrenalina, sueros gomados, etc.

Si es cardio-vascular, se emplearán de preferencia la digitalina, ouabaína, adrenalina (con reservas); se evitará la introducción de grandes cantidades de líquidos, especialmente endovenosos, para evitar una sobrecargo al corazón.

Si se tratara de colapso protoplasmático, deben emplearse substancias que eviten la fuga del plasma vascular, tales como: adrenalina, calcio, inyecciones endovenosas hipertónicas.

La transfusión sanguinea no da, según Eppinger, resultados favorables visibles en gran número de operados.

Si hay schoc por pérdida de sangre (hemorragia), se agregará al suero fisiológico endovenoso, inyecciones gomadas.

TRATAMIENTO QUIRÚRGICO RADICAL ELECTROCIRUJÍA

Nuestra práctica en la cirujía rectal ha ido evolucionando merced al progreso de nuestros conocimientos y de la experiencia adquirida. Así es que en los primeros años, en 1927, al hacerse cargo en forma transitoria uno de nosotros del servicio de cirujía del Instituto de Medicina Experimental, operamos nuestros primeros enfermos por el antiguo método sacral.

En ese entonces (año 1927 y comienzos de 1928), los enfermos que llegaban en condiciones de operabilidad, eran en realidad una verdadera excepción, pues la mayoría lo hacían en el final de sus procesos. En el año 1928, un hecho inesperado para nosotros vino a despertarnos la atención por un método conocido pero caído un tanto en desuso y reducida su acción al campo de ciertas especialidades; me refiero a la electrocirujía, cuyas bondades habían sido puestas de manifiesto con todo entusiasmo por Cerny y Doyen en Europa y por Eudoro Cisneros entre nosotros.

Keysser, pioneer esforzado de la electrocirujía, nos mostró en su primera espontánea visita al Instituto del Cáncer, en forma brillante y objetiva, cuánto se podía lograr de este método, puesto al día merced a su ciencia y a su tenacidad y que la electrocirujía, debido a la existencia de aparatos por él ideados, de gran rendimiento, en los cuales se posibilita el uso simultaneo de diferentes clases de corrientes para fines quirúrgicos, era un medio muy útil cuando no insubstituíble en el tratamiento quirúrgico del cáncer. A él le debemos todo nuestro entusiasmo y el progreso logrado con éste medio terapéutico.

Desde ese entonces comenzamos a tratar los cánceres inoperables, haciendo intervenciones paliativas y de inmediato, impresionados por sus brillantes resultados, extendimos la indicación a la operación radical, haciendo nuestra primera operación electroquirúrgica de recto, al finalizar el año 1928.

A partir de esa época, en estas localizaciones como en otras neoplásicas, la electrocirujía, por indicación de la dirección del Instituto, suplantó a la cirujía cruenta, pudiendo decirse en honor de quien la rehabilitó y la enseñara sin egoísmo—el profesor Keysser—que es patrimonio de la escuela argentina de cancerología el haber sido la primera en adoptarla y estandardizar el procedimiento en el tratamiento electroquirúrgico rectal, pues si bien hoy vemos que Kirchner, Goetze, Mandl, verdaderas autoridades en cirujía rectal, indican sus ventajas, en su visita a Alemania en el año 1933, al ponerse uno de nosotros (Carranza) en correspondencia con el profesor Goetze con el deseo de verle practicar su método, contestaba textualmente, al acusar recibo de su monografía sobre el tratamiento electoquirúrgico del cáncer, que quería hacer resaltar que él practicaba su método solamente con cirujía cruenta. Esto era en el año 1933, y nosotros lo hacíamos desde el año 1928.

No es nuestro propósito insistir en las ventajas del procedimiento electroquirúrgico. Todas ellas han sido comentadas en extenso en diferentes publicaciones anteriores, y sobre todo en sus fundamentos en el trabajo "Tratamiento quirúrgico del cáncer uterino grave por la electrocirujía" (Carranza, año 1932), y en la comunicación que sobre el tema hizo a la Sociedad de Cirujía en el año 1933, que fué relatada por el profesor Copello sintetizaremos tan sólo nuestra opinión sobre ella, diciendo lo que acertadamente expresara Heitz Boyer al comentar sus ventajas en la Sociedad de Cirujía de París, en el año 1935: Ella permite "de faire mieux ce qu'on faisait déjà"; como también extender nuestras posibilidades quirúrgicas, operando enfermos que sin su ayuda nadie osaría formular una indicación operatoria; fundamentando sus beneficios y ventajas sobre la cirujía cruenta, en la oclusión de los vasos sanguíneos y linfáticos, efectos anti-infecciosos y anti-schocantes debido a las propiedades de las corrientes de alta frecuencia.

Desde el año 1928 hasta 1931, practicamos la operación sacral vieja según Hochenegg y Lexer, y desde esa fecha hasta ahora, debido a los trabajos fundamentales de Goetze para conseguir una radicalidad efectiva, preferimos su técnica, que en muchos puntos la efectuábamos instintivamente, forzados por las circunstancias, pero sin haber dado la explicación ni el fundamento [illegible] magistralmente puestos en [illegible] comunicación a la Sociedad de Cirujía de Berlín en 1931; y la clasificamos de operación sacral ampliada, de acuerdo con Mandl, el sucesor de Hochenegg en Viena, donde continuara con todo brillo la escuela de su maestro en cirujía rectal.

Técnica.—Diremos que esta operación la efectuamos en dos tiempos: primer tiempo, colostomía y exploración de la lesión, a lo que sigue el tratamiento del recto enfermo por lavajes rectales, lo que permite la indicación de la radioterapia penetrante, que modifica favorablemente las lesiones inflamatorias concomitantes y después que el enfermo ha abandonado el lecho y cuando haya recuperado y mejorado su estado general, haciendo dar la idea, ilusoria para él, de que su lesión ha desaparecido, es el momento y nunca antes, de operar radicalmente al enfermo.

Insistimos sobre este hecho que nos ha enseñado la práctica: nunca se deberá apresurarse a efectuar el segundo tiempo en la creencia de que se favorecerá el pronóstico, ya que el tiempo de la premura de la indicación operatoria ha pasado, y es mucho más importante mejorar el estado general, único medio que permitirá la esperanza de operar con éxito en forma radical, es decir definitiva.

Quédanos expresar qué diferencia existe entre el método sacral viejo y el método sacral ampliado según [illegible] haciendo notar que el moderno [illegible] pone para su práctica el conoc[illegible] haber [illegible] esta vía, que [illegible] la [illegible] campo o[illegible] plio que [illegible] explorar [illegible] [illegible] del[illegible] y [illegible] ins[illegible] s [illegible] a- [illegible] gi- [illegible] os [illegible] rés [illegible] de rebajar la mortalidad operatoria y mejorar los resultados definitivos?

No queremos decir con esto que el método sacral ampliado es el único e insubstituíble en el tratamiento del carcinoma rectal, pero sí que es él de elección y que quede indicarse en la gran mayoría de los casos, es decir, en las localizaciones ampulares y anoperineales, y en los otros casos, o sea en aquellos en que existen contraindicaciones relativas por la gravedad del estado general, debe ceder su sitio al método viejo sacral según Hochenegg, que en sus manos y con simple cirujía cruenta ha dado resultados muy buenos, teniendo que esperar—con la ayuda que le presta el procedimiento electroquirúrgico — que se beneficiarán los resultados.

La vía sacra.—Caracteriza la operación conocida con el nombre de Kraske, la extirpación de una porción más o menos extensa del sacro como tiempo previo de la resección o amputación del recto.

Es ella, pues vía de acceso sujeta a distintas modalidades y no una técnica preciso en sus detalles. Expuesta por primera vez por Kraske en el 14° Congreso de la Sociedad Alemana de Cirujía de Berlin en 1885, tuvo de inmediato, no sólo en Alemania sino en todas los centros quirúrgicos de importancia una gran acojida durante un decenio. Pero el exceso de confianza que se cifrara en ella hizo que se extendieran sus indicaciones, haciendo que sus resultados fueran malos, traducidos por un aumento de la mortalidad operatoria, un elevado número de recidivas locales, a lo que debiera agregarse además que los resultados funcionales alcanzados fueron mediocres.

La operación de Kraske fué reemplazada entonces por el método abdómino-perineal en Inglaterra y Francia, que constituyó, sin duda alguna, un progreso, [illegible] beneficiara de [illegible] fundadas en el conocimiento de la patología rectal, practicándose una intervención mucho más amplia del recto en block con sus tejidos vecinas y los linfáticos.

Sin embargo, an Alemania y en Austria, los cirujanos permanecieron fieles a la vía sacra, tratando de beneficiarla con los adelantos en materia de técnica en la cirujía intestinal, y fueron en ese entonces Voelker, Lexer y Hochenegg los que la defendieron, y en la actualidad Goetze y Mandl son sus más cálidos defensores.

Nosotros concordamos con ellos que la vía sacra no merece el olvido en que la tienen la mayoría de los cirujanos, ya que ella facilita las intervenciones sobre el recto, proporcionando un amplio campo operatorio que permite hacer una operación sumamente radical, y por una razón fundamental: que el recto, órgano perineal, debe ser extirpado por vía baja y no por la vía abdominal.

Posición del enfermo.—La posición del enfermo en la vía sacra tiene gran importancia. La mayoría de los cirujanos prefieren la posición lateral que tiene como principal ventaja la comodidad del paciente en esta larga intervención. Pero esta ventaja está invalidada por éste hecho más importante: que la región no se visualiza homogeneamente y que el cirujano que debe operar sentado en esta posición, tiene en ella dificultades para diferenciar claramente las distintas fases de la intervención. La posición más lógica es la abdominal, posición de Depage, que fué el primero quien la preconizara, a la que se tilda de ser poco cómoda para el paciente que no tiene el hábito de ella y en la cual tiene que apoyar su cara lateralmente sobre la mesa.

De nuestra dilatada práctica deducimos que ninguna posición ofrece las ventajas al cirujano que las de la posición de Depage.

Entrenado el enfermo et esta posición, igualmente que acostumbrado el personal auxiliar a conocerla y al colocar al enfermo en forma confortable, se evitan los inconvenientes que algunos autores le han reprochado y que nosotros no hemos observado en nuestra práctica.

Lo fundamental es lo siguiente: estando colocado el enfermo en posición abdominal, las nalgas están tensas, las partes laterales izquierda y derecha visualizadas en forma igual y el cirujano colocado entre las piernas que están separadas, como lo indica la figura respectiva, puede operar de pié y ser asistido por dos ayudantes colocados a la derecha e izquierda del enfermo, que pueden efectuar su tarea en forma correcta y cómoda.

Todos los cirujanos sabemos el valor que tiene la ayuda eficaz y sistemática que lleva a la estandardización de la operación con el consiguiente beneficio para el paciente.

Debemos manifestar que sólo excepcionalmente, por incapacidad física o por extrema senectud del enfermo, no utilizamos la posición abdominal, valiéndonos de la posición de la talla con la pelvis elevada.

Recuerdo anatómico.—Haremos un pequeño recuerdo de la anatomía topográfica de la región cuyo conocimiento es de capital importancia si se quiere efectuar una operación bien reglada; somos de los que creemos que es perjudicial que el cirujano haga exceso de virtuosidad anatómica, pero que reconozca con seguridad las relaciones topográficas modificadas a veces en alto grado por el proceso neoplásico, y que sólo éste recuerdo anatómico constante hará salvar los escollos y no tener accidentes operatorios desagradables.

La región sacra, topográficamente, es de extrema simpleza en sus planos superficiales; en la línea media, se encuentra el coxis y, por encima, el hueso sacro, del cual es fácil y sin ningún peligro resecar su última vértebra, para lo que basta liberarlo de las inserciones del músculo glúteo mayor a la derecha e izquierda, no existiendo vasos ni vervios importantes a respetar, salvo la arteria sacra media que no se lesionaré si se sigue una técnica apropiada, y en caso que ello ocurriera, basta tomarla con una pinza y efectuar la ligadura biológica, aplicando simplemente el electrodo activo sobre la pinza hemostática.

Esta simpleza topográfica desaparece de improviso cuando se penetra en el interior de la pelvis, y se observa, y nos ha pasado a nosotros mismos en nuestras primeras operaciones por vía sacra, que esta intervención que se desarrollaba hasta este momento en forma elegante y precisa, deja de ser así para dar lugar a maniobras confusas, falto el operador de la orientación anatómica justa; se siente y se trasluce la indecisión y está librado al azar en encontrar en éste momento, en una maniobra ciega, la ruta que se ha perdido.

Los que hemos luchado con estas dificultades, hemos tratado de subsanarlas, recurriendo a los libros clásicos de medicina operatoria que son muy poco o nada explícitos en estros detalles de la técnica; por lo que hemos resuelto hacer una revisión de la anatomía topográfica de la región, tomando como base los fundamentales pero ya anticuados trabajos de Voelker.

Al distinguido anatomista Dr. J. Catcula debemos los cortes anatómicos que figuran en este trabajo. Ellos han sido efectuados en la Cátedra de Anatomía topográfica del profesor Galli y hechos de acuerdo a las necesidades quirúrgicas que hemos mencionado, tratando de aclarar las relaciones quirúrgicas importantes y deshechar aquellos datos que tengan un simple interés anatómico.

Estas preparaciones anatómicas, hechas en amplia colaboración del cirujano de rebajar la mortalidad operatoria y mejorar los resultados definitivos?

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Estas preparaciones anatómicas, hechas en amplia colaboración del cirujano con el anatomista, permiten compenetrarse en forma práctica del estudio de las envolturas o fascies del recto, cuyas descripciones son tan variadas según las diferentes escuelas y sobre todo confusas, como también nos han servido para deshechar nociones erroneas que se repiten en todos los textos y artículos sobre medicina operatoria, gravándonos, en cambio, en nuestra mente las relaciones importantes que no debe olvidar el cirujano en el momento operatorio.

LA AMPUTACIÓN SACRAL DEL RECTO

Usamos en esta intervención de preferencia la anestesia raquídea a la novocaína, cuya dosis se gradúa según el peso del enfermo, pero no sobrepasando nunca la cantidad de 12 centígramos. Esta anestesia nos ha permitido operar cómodamente todos los casos de nuestro material, y en casos muy excepcionales que podemos traducir en el 1-2 por ciento, ha sido necesario completar la anestesia raquídea en el tiempo final de la intervención con gases.

Anestesiado el enfermo en decúbito prono, con los muslos flexionados en ángulo recto y los miembros inferiores ampliamente separados y colgando así abajo; aplicación del electrodo inactivo en el bajo vientre; limpieza de la ampolla rectal con una solución de ácido pícrico; colocación en el ano de una gasa embebida en esta solución y cierre de este orificio por sutura en bolsa, tomando la gasa.

Utilizando la corriente de electrotomía, se incinde la piel a partir de la región sacra en la linea media, por encima del tercer agujero sacro, y se desciende hacia abajo, un poco a la izquierda de la linea media hasta circunscribir en ano. División del tejido celuloadiposo en toda la extención de la herida, utilizando la misma corriente.

Se separa el glúteo mayor de sus inserciones sacras, igualmente el ligamento túberosacral, inserto por debajo de las fibras de dicho músculo; se secciona igualmente el ligamento espinosacral, para lo que se utiliza la corriente de coagulotomía, y se mantiene el cirujano en la proximidad de la región ósea para evitar la hemorragia que es nula y salvar la arteria pudenca común que corre más hacia afuera.

Osteotomía del sacro por debajo del tercer agujero sacro, sirviéndose de un escoplo amplio, con el cual se golpea lentamente. Seccionado el hueso, se tira hacia abajo con la ayuda de un tenáculo o un grancho apropiado, separando con cuidado el hueso de la fascia pelvivisceral, evitando así herir la arteria sacra media.

Hecho esto, se separa el recto conjuntamente con su envoltura fibrosa que contiene el tejido conjuntivo retrorectal, de la cavidad ósea por medio de la maniobra descripta por Goetze, que se efectúa con gasa montada, con lo que se crea así una amplia cavidad que deja visualizar arriba el promontorio, hacia adelante el recto con su envoltura fibrosa y hacia abajo los elevadores recubiertos por la fascia anal.

Comienza ahora en realidad la intervención, donde es necesario el conocimiento topográfico que hemos mencionado arriba. Debajo del sacrocoxis extirpado aparece una tensa capa de tejido conjuntivo con estrías de tejido adiposo. Es la fascia que recubre la parte externa del músculo elevador del ano (fascia musculo elevator ani). Esta fascia recubre lateralmente el tejido muscular, pero se transforma en la linea media en una especie de aponeurosis que en éste sitio mediano está adherida íntimamente al recto que se encuentra colocado por debajo. Esta adherencia mediana es de diferente ancho, pero, en general, es de 2 cm. y la variación de extensión depende de la extensión del proceso rectal.

Como el músculo elevador del ano está adherido lateralmente a la pared pelviana, lleva el camino en su parte externa a la pared pelviana y no al recto; hay que seccionar al músculo elevador e ir por su parte interna, con lo que se llega al embudo por él que pasa el recto. La sección del músculo elevador no se debe efectuar en la linea media sino a ambos lados, algunos centímetros de la linea mediana. Las fibras musculares se seccionan transversalmente a su curso de arriba hacia abajo; para ello se emplea el corte de coagulotomía. No se produce hemorragia al hacer este corte y no es necesario ligar vasos, quedando de la sección bilateral de los elvadores un trozo muscular rectangular de 6 a 8 cm. de largo por 4 a 5 cm. de ancho, colgando del recto, que puede servir para traccionar este órgano en uno u otro sentido.

Se ha seccionado el músculo elevador del ano; todavía no tenemos a la vista el recto sino una capa de tejido brilloso y laxo, de aspecto de una bolsa serosa. Es la hoja visceral de la fascia pelviana. Esta hoja visceral de la fascia pelviana rodea en la región sacra al recto y a las partes urogenitales que se encuentran por delante. Reviste, pues, en el hombre, al recto conjuntamente con las vesículas seminales, al cuello de la vejiga y a la próstata, y en la mujer al recto, cuello uterino y vagina. Si uno quiere encontrar el camino a la cara anterior del recto, es decir, al espacio entre éste y el tracto urogenital, no se debe mantener en la parte externa de este tejido conjuntivo, que nos llevaría a la cara anterior de la próstata o de la vagina. Hay que incindir la fascia visceral pelviana y, hecho esto, llegará fácilmente a la cara anterior del recto.

Indicaremos cuál es el sitio más apropiado para hacer la incisión de esta fascia. Tirando por intermedio de la sutura del ano hacia abajo y hacia el costado por medio del tejido muscular
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coagulotomía, permite una
mayor del intestino, que s
hacia abajo.

Llegamos ahora a la inci
toneo. El peritoneo asienta
jiga y las bolsas esperm
hombre, sobre el cuello u
mujer, en forma más laxa

recto. Si se retira el recto de las partes que están por delante, queda la parte envolvente adherida a la cara anterior del recto.

Abertura del peritoneo: Casi a la mitad e altura entre el promontorio y el borde del sacro resecado, a 2 cm. a la derecha de la linea media (es decir, a 4 cm. del recto que está situado en el hombre más hacia la izquierda), se secciona, por medio de un pequeño corte longitudinal, la fascia pelvivisceral y se empuja el tejido laxo, que está debajo, hacia la izquierda. Se choca entonces contra una membrana serosa fuerte que es el peritoneo, la que se incinde longitudinalmente.

Nosotros hemos comprobado en nuestros cortes seriedos que esta indicación dada por Goetze en sus trabajos es exacta y que éste es el sitio más apropiado para abrir el peritoneo por vía sacra; y, además, éste hecho importante: que el recto, en el hombre, está lateralizado a la izquierda, mientras que en la mujer guarda una posición mediana (Ver cortes anatómicos, Figs. 7 y 8).

En éste sitio, no hay vasos que molesten, y los uréteres, escollos siempre a evitar en estas intervenciones, son llevados en esta forma hacia adelante (fuera de la fascia pelvivisceral), y aún cuando ellos se encuentren fuera del campo operatorio, es aconsejable visualizarlos para evitar su lesión, sobre todo en la mujer; y recordemos que de los dos, el izquierdo es el que guarda una relación más íntima con el recto (ver lámina ilustrativa correspondiente).

Después de haber reparado el peritoneo y agrandado la incisión hacia arriba y hacia abajo, se penetra con el índice derecho por afuera del ya visualizado colon pelvineo, y se hace con la yema del dedo bombear la bolsa peritoneal del lado izquierdo y, libre ésta de las adherencias que pueden presentarse, se reemplaza el dedo, según lo aconseja Goetze, por un instrumento curvo, que puede ser un gancho de Trendelenburg usado en la cirujía pulmonar. Nosotros usamos un Dechamps especial de gran tamaño, y sobre su punto se abre el peritoneo a la izquierda en la misma forma que hemos hecho a la derecha, con un corte longitudinal, que se agranda hacia arriba y abajo, reparando luego su borde lateral.

Abierto el peritoneo, se coloca una rienda que tire el recto y ponga tenso el cordón vascular de la arteria hemorroidal superior, que es entonces fácilmente ligada con una doble ligadura con seda y seccionada a la altura del promontorio.

Hecho esto, el colon cede de golpe y se desarrolla con facilidad el ansa sigmoidea. Como el enfermo está colocado en posición abdominal y en ligero Trendelenburg, las ansas intestinales no molestan en absoluto, y se observa claramente el espacio entre la vejiga y la pared rectal anterior. Se visualiza exactamente el peritoneo incindido a la derecha e izquierda del colon pelviano, y estos cortes son unidos, como en el método abdóminoperineal, por medio de un corte semilunar delante del recto y efectuado éste tiempo bajo el control visual, se separa el recto con corriente de electrotomía de la vejiga, de las vesículas seminales, conductos deferentes y próstata, respectivamente, en la mujer del cuello del útero y de la vagina.

Este acto operatorio se efectúa con sorprendente facilidad. Ligaduras hemostáticas no son necesarias, pues, ligada la hemorroidal superior, la región está exangue, ya que casi todos los vasos en este sitio son tributarios de ella. Nos restará ligar tan sólo la arteria hemorroidal media situada lateralmente en los llamados alerones del recto.

No nos explicamos porqué algunos autores sacrifican la arteria hipogástrica y, con ella, vasos importantes, como la glútea mayor, la arteria vesical, la uterina y la pudenda, cuando está plenamente demostrado que la irrigación del recto depende en su casi totalidad de la hemorroidal superior, y el resto de la media e inferior.

Siempre bajo control visual, se completa la sección del recto de sus partes laterales y, una vez hecho esto, se fija la altura donde se seccionará ulteriormente el colon sigmoideo, y se desarrolla esto en forma que no sufra tironeamientos y que tenga una irrigación apropiada, lo que se consigue respetando la arcada marginal. Luego, se cierra el peritoneo a la izquierda y derecha por medio de una sutura continua con catgut, que empieza en la parte superior de su abertura y desciende hasta el sitio en que se formará un nuevo espacio de Douglas.

Cerrado el peritoneo totalmente y reforzada su sutura con unos puntos de seguridad, se secciona recién el intestino en la forma habitual y el muñón, cerrado por un *clamp*, se fija en la parte superior de la herida del lado izquierdo.

Se aconseja, y nosotros lo practicamos, recubrir el muñón sigmoideo con una capa de goma aséptica y mantenerla cerrada durante 48 horas. Liberado el recto fácilmente de sus conexiones inferiores, se ponen algunos puntos de contención y se tapona ampliamente la cavida creada, lo que da una gran seguridad al enfermo en lo referente a la infección tan temida en las intervenciones del carcinoma rectal.

De la técnica descripta, el único de dificultad en la técnica operatoria es la ligadura en sitio apropiado de la arteria hemorroidal superior, que debe hacerse en el mismo sitio que se efectúa en la operación abdóminoperineal, es decir, a 2 cm. por encima del promontorio.

Sintetizando, la operación debe desarrollarse en los tiempos siguientes:

Primer acto operatorio: Sección del elevador del ano en sitio apropiado;
Segundo acto operatorio: Sección de la fascia pelvivisceral;
Tercer acto operatorio: Desprendimiento del recto de las formaciones genitales anteriores;
Cuarto acto operatorio: Abertura del peritoneo;
Quinto acto operatorio: Ligadura de la arteria hemorroidal superior;
Sexto acto operatorio: Cierre del peritoneo;
Séptimo acto operatorio: Sección intestinal en la altura apropiada;
Octavo acto operatorio: Extirpación del recto de arriba abajo;
Noveno acto operatorio: Cierre de la cavidad por taponamiento.

TRATAMIENTO DE LOS CÁNCERES INOPERABLES

Juzgado un cáncer de recto inextirpable radicalmente, la técnica usada por nosotros es la siguiente: Después de haber efectuado el ano contra natura ilíaco definitivo, se hacen las mismas indicaciones complementarias como hemos indicado en el capítulo sobre el tratamiento radical, que sirve para preparar al enfermo para la práctica indefectible de la lesión por la electrocirujía, porque nosotros creemos firmemente que el ano contra natura, sólo obra eficazmente en el caso raro y eventual de una oclusión, pero que no tiene acción sobre la evolución del cáncer en sí, y menos en el tratamiento de sus síntomas más penosos: fenómenos de compresión, intoxicación, pérdidas tenaces, etc.

En estas lesiones inoperables, nosotros asociamos siempre, en este tiempo de espera de buen funcionamiento del ano, la radioterapia penetrante.

La intervención en sí, tiende a eliminar
en la forma más radicalmente posible l
lesión; claro es [illegible] e en esto
imposible fij [illegible] écnica [illegible]
ella está su[illegible] egún [illegible]

tensión y adherencias que la lesión tenga con los órganos vecinos.

En lesiones bajamente situadas el procedimiento es más simple, en oposición a él de casos de lesiones altamente situadas por encima del fondo de saco peritoneal, que serán más difíciles de tratamiento y más peligrosas, en las cuales se aconseja efectuar este procedimiento paliativo sin abrir el peritoneo que actuará de aislador sobre la vagina, cuello uterino y vejiga, respectivamente.

Caracteriza al procedimiento el tratamiento electroquirúrgico del cáncer inoperable, el siguiente tiempo: la abertura dorsal del recto por corte de coagulación, después de haber efectuado naturalmente la exposición amplia del recto, asiento de la lesión, por la resección del sacro y del coxis. Hecho este tiempo de la abertura dorsal del recto, se procederá bajo la vista a la coagulación del tumor.

Generalmente este corte longitudinal se efectuará sobre un tapón de gasa montada introducido por el recto para protegerlo en el caso que la tumoración esté situada también sobre la pared posterior, se coagulará la tumoración desde la luz rectal en la forma más amplia posible, esto con el objeto de evitar las hemorragias.

El procedimiento electroquirúrgico en los cánceres inoperables, tema sobre el cual tenemos gran experiencia, ofrece ventajas dignas de tenerse en cuento y de gran interés en beneficio de los enfermos, pues a veces se obtienen mayores resultados de los previstos, y esto así: después de haber tratado enfermos electroquirúrgicamente en sus tiempos primeros de la intervención por la coagulación del tumor, el calor hace separar la tumoración rectal de las adherencias que ella tenía con los órganos vecinos, haciendo posible una operación radical, es decir, que en casos dados, la electrocirujía ha tornado un caso inoperable en un caso operable. Cuando esta feliz contingencia ocurre, se cierra con un clamp la abertura dorsal practicada y se procede a la amputación radical calcada ya de la operación sacral vieja o de la amputación coxiperineal.

En caso que esto no sea posible, se efectúa la sección del recto por encima de la lesión, fijando el cabo a la extremidad superior de la herida, y se trata de suprimir la tumoración con la parte del recto, asiento de ella, por coagulatomía, después de haber sido coagulada, finalizando la intervención extirpando la parte inferior del recto incluyendo ano, esfinter y grasa del espacio perirectal, quedando al finalizar la intervención, una cavidad semejante a la restante al efectuar una amputación perineal típica.

Siempre queda en estos casos, claro es al cirujano especializado, la pena de no poder actuar radicalmente, y en este procedimiento hay que contar siempre, cuando el proceso extendido situado en la pared anterior, fijándolo a la vejiga, sobre todo en el hombre, a la eventual formación de una fístula, que retardará pero no impedirá, como nos ha ocurrido, la cicatrización que concluye por cerrar muchas veces estos procesos fistulosos.

Como contraindicación del procedimiento de la electrocirujía en la forma que hemos descripto, se encuentran aquellos casos extendidos en que se comprueba, una vez la lesión explorada quirúrgicamente, que ella se extiende al fondo del saco peritoneal infiltrándolo. En estos casos no se podrá efectuar la electrocoagulación en forma correcta, sino hacer una electrocoagulación de limpieza que tendrá efectos más morales que curativos.

Cuando por causas circumstanciales no es posible efectuar el tratamiento electroquirúrgico paliativo a cielo abierto, para nosotros él de elección y que se basa en la rectotomía posterior, método propuesto desde hace muchos años antes de conocerse el procedimiento electroquirúrgico por Denonvilliers y Verneuil, para combatir la amenaza de ileus en el carcinoma rectal inoperable, puede recurrirse a la electrocoagulación transanal, usada por Stefani, Schmidt, Strauss y sobre todo por Henschen, de Basilea, que ha hecho construir un instrumental especial para la electrocoagulación endorectal del carcinoma.

Nosotros hemos hecho en nuestro relato al Octavo Congreso de la Asociación de Cirujía de Buenos Aires un estudio detallado del procedimiento transanal.

Ahora bien, prácticamente, nosotros lo usamos excepcionalmente, por creerlo inferior en sus resultados al método anteriormente descrito, y lo hacemos forzados por las circunstancias, cuando la edad muy avanzada de los pacientes o una contraindicación seria de orden general impidan practicarlo.

Como conclusión, queda sentado, para nosotros, que el método electroquirúrgico es de elección en esta localización de las neoplasias, y que con él se ha conseguido un sensible mejoramiento de los resultados, ya que de nuestra experiencia surge que se puede obtener un 50 por ciento de curaciones de más de 5 años. Esta cifra se refiere a 261 enfermos operados por nosotros, con una mortalidad operatoria de 2 por ciento, lo que es el mejor elogio que se pueda hacer del procedimiento.*

RÉSUMÉ

Les auteurs font un rapport sur le cancer rectal, en considérant premièrement quelques données statistiques, relatives à la fréquence, ses formes cliniques, etc., chez un total de 926 malades de cette localisation de l'Institut de Médecine Expérimentale de Buenos Aires. Ils passent ensuite à l'étude des résultats obtenus par la Roentgenthérapie et le radium dont les succès médiocres en comparaison avec ceux de l'électrochirurgie, les obligent à se détenir sur ce dernier traitement, dont ils exposent les détails.

A base de leur expérience obtenue dans un gran nombre de cas traités, les auteurs formulent la conclusion suivante: "Il n'existe pas de doute pour nous, que l'électrochirurgie est le traitement d'élection pour cette localisation néoplasique et qui a permis d'obtenir une amélioration considérable, des résultats puisque notre expérience nous montre que l'on peut atteindre 50 pour cent de guérisons de plus de 5 ans. Ce chiffre se réfère à 261 malades, opérés par nous, avec un mortalité opératoire de 2 pour cent, ce qui est le meilleur éloge que l'on puisse faire de ce traitement."

SUMARIO

Los autores hacen una relación sobre el cáncer de recto y después de considerar algunas cifras relativas a la frecuencia, formas clínicas, de los enfermos tratados en el Instituto de Medicina Experimental sobre un total de 926 enfermos, estudian los tratamientos efectuados considerando en primer término la radioterapia, y el radium, para detenerse, en vista de los pocos éxitos obtenidos con estos procedimientos, sobre el tratamiento electroquirúrgico.

Como conclusión y teniendo en cuenta la cifra de los numerosos casos tratados terminan manifestando: "queda sentado, para nosotros, que el método electroquirúrgico es de elección en esta localización de las neoplasias, y que con él se ha consequido un sensible mejoramiento de los resultados ya que de nuestra experiencia surge que se puede obtener un 50 por ciento de curaciones de más de 5 años. Esa cifra se ref 261 mos
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*Se ha omitido una voluminosa bibliografía por falta de espacio.

es el mejor elogio que se pueda hacer del procedimiento."

Выводы

На основании своего опыта лечения рака прямой кишки, авторы пришли к заключению, что электрохирургия является лучшим методом лечения етого заболевания. Этот метод применялся у 261 больных в течении 5 лет; из 50% оперированных таким способом больных, 2% окончились смертью.

DOMINIQUE-JEAN LARREY

(Continued from page 201)

on yellow fever, epilepsy, cholera morbus, syphilitic chorea and plica polonica. The *débridement procedure*, supposedly a new method in 1914, was found later to have been devised by Larrey in 1814. The *Labarraque solution* employed by Larrey a century ago became the *Dakin's solution* of 1914. His diagnostic skill was marvelous. Larrey was the first surgeon to incise the pericardium. Larrey divided head injuries into two classes: those in which trephining is indicated and those in which it is not. He wrote extensively on hernia of the brain. Until his time all bladder wounds were considered fatal. Larrey pointed out that the bladder is rarely injured when empty or if it is penetrated at the upper part where it is not covered by the peritoneum.

To sum up Larrey's greatest surgical achievements, they are: (1) the "flying ambulance"; (2) use of salt solution in simple cases and Labarraque's solution in infections; (3) abandonment of greases, oils and elaborate dressings; (4) avoidance of "meddlesome surgery"; (5) avoidance of unnecessary dressing of wounds: (6) insistence of plenty of rest: (7) immediate amputations: (8) insistence on early hospitalization of wounded: and (9) insistence on plenty of rest for the patient.

The subjoined letter of Larrey represents a book review of "*Pharmaceutical Pandects.*" The book is described by *Larrey and other members of his committee* as being composed of a "history of pharmacy and embodies the administrative regulations which were in force in former times as well as the laws in force at present." The committee is laudatory about this opus, which it regarded as "sources of enlightenment for pharmacists during their civil and military career, as well as in every circumstance where their intervention is judged necessary. . . . This book forms in its various aspects a very useful compilation to consult." The committee further approves this work and advises the Minister to subscribe for copies to be distributed in hospitals and for teaching purposes.

Larrey's versatility is remarkable. His contributions to trench-foot, amputations, granular conjunctivitis, etc., certainly bespeaks that he did not have a one-track mind. His practice of wound excision compared with modern teachings of *débridement* is noteworthy, as are also his thoughts on "flying ambulances," the precursors of modern advances of transportation of casualties to and from the theater of action. While they were crude in comparison, nevertheless the warfare of yesteryear was crude indeed as compared with the mechanically refined warfare of today.

That Larrey was much respected and his advice sought in matters outside the field of medicine by the humble, near-great and great is evident. A letter of interest in this connection is one from

(Continued on page 224)

Transplantation of Omentum in Closure of Cerebro-Spinal Fluid Fistula

FELIX MANDL, M.D., F.I.C.S.*
JERUSALEM, PALESTINE

ON July 10, 1939, a man 48 years of age was brought to the hospital with a tangential gunshot injury of the right frontal and parietal bones of the skull.

Examination revealed that the bone was destroyed and the brain slightly prolapsed. There was a defect in the skin. The x-ray film showed a fracture of the skull-cap, accompanied by fissures extending to the right, toward the parietal bone. The general condition was good. There were no changes in the cranial nerves. Blood pressure was normal. The sensorium was slightly troubled. No symptoms of brain pressure were present.

Trepanation was performed immediately and the bone splinters which had penetrated into the brain were extracted. The bone was removed until healthy and uninjured dura was reached. Thus there resulted a defect about the size of an egg. After débridement of the skin and formation of a flap, a primary closure of the wound was rendered possible. A gauze strip led out of the skin. However, the primary wound closure did not remain firm. The skin wound opened and a brain prolapse developed. In order to reduce the latter in size, lumbar punctures were made. Vaseline gauze dressings were applied.

On August 1, a cerebrospinal fluid fistula appeared which contained great quantities of liquid, necessitating repeated changes of dressing and use of a number of procedures to prevent its loss. A lumbar puncture was made every day and the patient given intravenous injections of hypertonic solutions. He was put on a dry food diet.

There was no possibility of draining the fistula liquid, since it oozed diffusely from the prolapse. In the course of the following days the temperature rose to 39° C. and then oscillated between 38° and 39° C.

On August 6, a piece of omentum was grafted on the brain prolapse in those places from which the liquid was discharged. On August 7, the quantity of discharged liquid was distinctly reduced, and by the following day the discharge had completely stopped.

When the dressing was changed, the omentum was seen to be well nourished in the places covering the fluid fistula, having formed adhesions with the brain there. Farther from the fistula, the omentum had become necrotic. Vaseline gauze dressings were renewed daily. The blood culture was negative, the [illegible] culture sterile. The temperature [illegible] gradually. While lumbar punctures were continued, the brain [illegible] receded.

On September [illegible],

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*From the Surgical Department, Hadassah University Hospital, Jerusalem, Palestine.

cedió a una inyección de morfina. Esta observación ha sido comunicada a la Sociedad de Cirugía.

"En el segundo caso, hice la resección del olécrano por fractura complicada e infectada. Dosis 0.035 grm. La analgesia del miembro superior vino en once minutos, ni nauseas ni vómitos; el pulso no pasó de 92. Como secuelas sólo una cefalea de 24 horas.

"En un tercer caso practiqué la desarticulación del puño por una artritis purulenta, consecutiva a una sinovitis de las vainas; el enfermo presentaba una albuminuria muy intensa. Inyecté 4 cgrms. de cocaína, la anestesia no fué completa sino hasta la tercera costilla. Fué mediocre en el miembro superior, y el enfermo se quejaba muy vivamente. Notemos sin embargo, que el enfermo no gritaba sino débilmente y no se contraía sino muy poco. Es cierto que la cocaína ha facilitado mucho la operación y que sin ella hubiera sido imposible, sobre todo en un enfermo nervioso y miedoso; añadiré que la cocaína empleada en este enfermo era una solución isotónica mucho menos activa que la solución acuosa, como lo veremos. También refierá Chaput, tres operaciones practicadas arriba del tórax, una en el cuello y otras dos al nivel del maxilar inferior. De los resultados obtenidos concluye que la analgesia en la cabeza y en el cuello no había sido satisfactoria puesto que el paciente sentía algo de dolor. El hacía constar que la cocaína causa cierta angustia en parte porque el paciente oye todos los detalles de la operación y que, la anestesia espinal presenta dificultades cuando se trata de la analgesia alta porque aparece lentamente, grandes dosis de cocaína son necesarias. Y concluye Chaput que (1) que la anestesia total puede ser obtenida por medio de la inyección de cocaína; (2), para asegurar la anestesia de las extremidades superiores, 4 cgrms. de cocaína deben ser usados; (3), la anestesia en la cara y en el cuello no es suficiente para permitir operaciones en estas regiones, en parte por la emoción producida en el paciente por las manipulaciones operatorias; solamente cuando la anestesia general por narcosis y la anestesia local estén contraindicadas, se empleará la anestesia espinal para operaciones en la cabeza; (4) la solución isotónica produce anestesia menos efectiva que la solución acuosa, porque es menos difusible que la última.

En 1901, Tait y Caglieri relatan la inyección de cocaína al nivel del sexto espacio cervical en seis casos, sin malos resultados.

En 1901, Morton reseca el maxilar superior, bajo anestesia espinal.

En 1901, Morton relata 253 operaciones bajo anestesia espinal, 8 de las cuales fueron hechas arriba del diafragma. Más tarde relata otra serie de 61 operaciones, 55 de las cuales fueron hechas en la cabeza o en las extremidades superiores.

Le Filiatre, en 1918, publicó un método ideado en 1902, y que consiste en puncionar en el espacio sacro-lumbar y sacar una cantidad variable de líquido céfalo-raquídeo, según la altura a que se desee llevar la anestesia; 25 c.c. para anestesiar al nivel de los pezones y 30 c.c. para anestesiar la cabeza e inyectar 1 c.c. de solución de cocaína al 1½ por ciento para operar en las piernas, 2 c.c. para la región sub-umbilical y 3 c.c. para anestesia general, practicando el barboteo o agitación del líquido céfalo-raquídeo por tres o cuatro veces (comunicado esto a la Academia de Cirugía el mes de julio de 1919).

En 1908, Jonnesco presenta un procedimiento de anestesia que consiste en puncionar a diversas alturas, según sea el nivel al cual se quiere llevar la anestesia, punción media-cervical, dorsal-superior, dorsal-media o dorso-lumbar y lumbar, usando como anestésico la estovaína con estricnina y cafeína. Los accidentes mortales que se presentaron en los casos de punción cervical y dorsal superior, hicieron abandonar este método.

M. Paul Delmas, profesor agregado a la Facultad de Montpellier, publicó en "La Press Medicale" de 14 de marzo de 1918 una modificación de técnica para obtener la analgesia general, empleando una jeringa de Lüer de 20 c.c. con cocaína 20 a 40 milgrms. y 20 c.c. de líquido céfalo-raquídeo, e introduciendo y rechazando con fuerza todo el contenido de la jeringa en el espacio aracnoideo sin repetir esta maniobra. Es en suma una inyección maciza y brusca, la punción la hace en el espacio lombo-sacro sentado el enfermo.

En diciembre de 1928, Koster en "The American Journal of Surgery," publica un artículo sobre anestesia espinal con referencia especial a su uso en cirugía de cráneo, cuello y tórax (procedimiento traído por el Dr. Ignacio Millán).

En 1924, Koster comenzó a usar la raqui-anestesia para operaciones infradiafragmáticas, y usaba la novocaína 100 milgrms., previa inyección de morfina y atropina, disuelto en 4 c.c. de líquido céfalo-raquídeo, haciendo la inyección al nivel del segundo espacio lombar, con el enfermo en decúbito lateral (generalmente izquierdo), obteniendo anestesias que llegaban hasta el nivel de los pezones; tratando hacer más duradera la anestesia, aumentó la dosis de anestésico a 20 cgrms., y la cantidad del líquido céfalo-raquídeo a 8 c.c., poniendo *después* al enfermo en posición de Trendelemburgo, 8° o 10° de inclinación, descubriendo casualmente que su enfermo estaba totalmente anestesiado. Koster no teme a la hipotensión, pues según dice: *la posición de Trendelemburgo le pone a salvo de cualquier accidente; no le preocupa la palidez, los sudores, ni el enfriamiento, considerando todo esto como natural en las anestesias altas; frecuentemente, según él, se presentan vómitos, la respiración es casi diafragmática, regular, lenta y disminuída en amplitud.* No aconseja ningún medicamento para aumentar la tensión arterial. No encuentra más contraindicación para la raqui-anestesia que la infección local al nivel del lugar donde se hace la punción. En cuanto a los fracasos en número de 4 que ha tenido, después de un estudio cuidadoso, no lo encuentra achacable al procedimiento de la raquia.

Labat, en 1930, presentó una técnica que es la siguiente: Previa inyección de morfina y escopolamina antes de la operación, punciona al enfermo entre la doceava dorsal y la primera lumbar para operaciones arriba del diafragma. Posición: sentado el enfermo, *Trendelemburgo inmediatamente después de la inyección, sosteniendo dicha posición aún 3 horas o más después de la operación.* No pone medicina para aumentar la tensión. Usa la novocaína francesa o neocaína, en 8 c.c. de 10 a 20 cgrms., agitando la inyección en las operaciones arriba del diafragma. *Rara vez se presenta la anestesia general con este método, dice Labat, considerando, pues, la generalización como un incidente.*

Vehers, en 1931, hizo estudios para determinar la dosis de novocaína necesaria para obtener la anestesia en la cabeza, sin causar la parálisis de los centros cardiacos y respiratorios, llegando a la conclusión que estos centros son los más resistentes a la acción de la novocaína, lo que hace la seguridad de la raquia generalizada. Y que la misma dosis inyectada y tolerada por vía medular, no lo
es si se inyecta
terna magna. *E*
Trendelemburg
evitar la anemia

Técnica de V

punción en el segundo espacio lumbar, 20 a 24 cgrms. en 3 c.c. diluída en 6 c.c. *La posición de Trendelemburgo se le da inmediatamente después de la inyección (10°), mantenida de 4 a 24 horas después de la operación.* "Las raíces motoras de la región dorso-lumbar y las raíces sensitivas de la médula y del cerebro, bajo la acción de la novocaína, a los 10 minutos permiten operar en cualquier parte del cuerpo." (Vehers).

Maxssonn dice: "160 milgrms. igualmente inyectados en el sexto espacio dorsal producen bloqueo sensorial de todo el cuerpo y bloqueo motor debajo de la sexta dorsal, dando origen a la anestesia general."

Pitkins dice (1927): "Disolviendo la novocaína en el líquido céfalo-raquídeo, he obtenido dos casos con anestesia completa." Concluyendo: "Que la posición dada *inmediatamente después de la inyección, hace generalizar la raquia, y que la posición asegura la circulación a un grado suficiente para sostener la vida en los diferentes casos.*"

Como se podrá observar, después de haber pasado revista a todos estos procedimientos, que unos se basan en la altura de la punción y de la inyección (Tait y Caglieri, Morton, Jonnesco), estos procedimientos han sido hasta la fecha abandonados, pues causaron varias muertes; otros como el de Le Filliatre, disminuyen la tensión del líquido céfalo-raquídeo, método que apliqué frecuentemente (lo mismo que los anteriores), y que si bien no tuve accidente que lamentar, algunas veces no permitía con seguridad obtener la anestesia generalizada; el método de Delmas no dió los resultados que su autor señala y que está basado sobre todo en la rapidez de la inyección: quedan los procedimientos cuyo fundamento radica en la influencia de la posición de Trendelemburgo, *dada inmediatamente después de la inyección* (Pitkins 1927), (Koster 1928), (Labat 1930), (Vehers 1931), tanto para que se difunda la substancia analgésica (según dichos autores), como para evitar la anemia cerebral, considerándolo algunos, indispensable desde este punto de vista para evitar un fracaso.

La observación diaria de los enfermos, desde los albores de la raquia, me han demostrado que aquellos a quienes se dá posición de Trendelemburgo *inmediatamente después de la inyección,* no se les generaliza la anestesia; es cierto que hay casos en los cuales se ha generalizado, pero son raros, no pudiendo servir como técnica segura.

Desde los estudios de Chaput he estudiado la influencia de la inclinación del enfermo *dada antes* unas veces, y *otras después de la inyección,* llegando a las conclusiones consignadas en las Tesis de Rodarte (1918) y de Garza Cantú (1935), de *que es necesario dar primero al enfermo una inclinación de 45°* y en esa situación inyectar la solución anestésica, *para que se generalice con seguridad.*

En cuanto a la posición de Trendelemburgo, tan recomendada por la mayoría de autores, como el secreto para evitar la muerte del enfermo, únicamente diré que meditando en lo que observamos diariamente, de que después de una operación que ha durado X tiempo, tan pronto se termina de operar se le quita la posición de Trendelemburgo, sin que hasta la fecha se nos haya presentado un accidente por semejante causa; ésta y algunas consideraciones que en próxima comunicación haré, me han hecho admitir que la posición de Trendelemburgo no tiene más importancia que para generalizar la anestesia, *siempre y cuando se dé dicha posición antes de inyectar el anestésico,* pero nunca darla después.

TÉCNICA DE DARÍO FERNÁNDEZ FIERRO

Por ahora voy a dar a conocer mi técnica, procurando hacer resaltar los detalles que la diferencían, de los demás procedimientos, para dejar bien demostrado que es diferente de las otras, y por ende un método nuevo, no descrito y cuya paternidad me pertenece.

Punción: La punción puede practicarse ya sea en decúbito lateral derecho (Fig. 1) o izquierdo, y en algunas ocasiones, cuando por circunstancias especiales se dificulta la punción o hay poca costumbre de hacerlo en tal posición, *se puede hacer estando sentado el enfermo, y después darle la inclinación necesaria antes de inyectar el analgésico, sin que tal maniobra encierre algún peligro.*

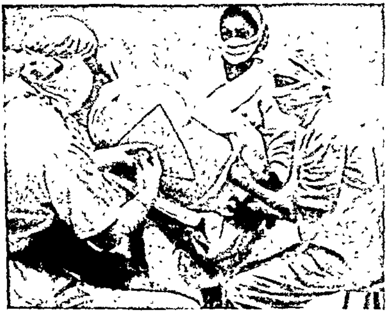

Fig. 1. Nivel de la punción.

Nivel de la punción: Acostumbro hacerlo entre la cuarta y la quinta o entre la tercera y la cuarta lumbares. (Fig. 1).

Preparación de la solución: Se prepara una solución de 0.20 cgrms. de novocaína Bayer hecha en 10 c.c. del líquido céfalo-raquídeo, para lo cual se pueden disolver dos ampolletas de 0.15 cgrms. en 3 c.c. del líquido céfalo-raquídeo, tomar 2 c.c. de dicha solución, con lo cual tenemos los 0.20 cgrms. de novocaína en 2 c.c., a los cuales añadimos 8 c.c. del líquido céfalo-raquídeo, con lo cual se tiene la solución que necesitamos.

Posición para la inyección: En este momento es cuando se dá al enfermo la inclinación de 45°, *antes de inyectar.* (Fig. 2). Esto es capital en mi método y lo diferenció de los otros precedimientos.

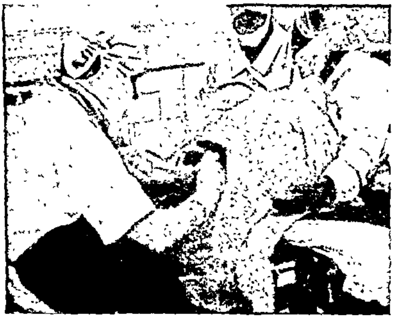

Fig. 2. Posición para la inyección.

Inyección: Habiendo dado previamente al enfermo la inclinación de 45° se practica la inyección. Después de hecho esto, se prepara el campo operatorio, y cuando todo está listo se quita el Trendelemburgo para operar en la posición que se desee, no concediéndole yo ninguna importancia como cuidado operatorio o post-operatorio para prevenir accidentes. Terminada la operación el paciente es llevado a su lecho guardando la posición horizontal por algunas horas, no siendo esto indispensable, y sólo cuando se presente algo de cefalea, con dicha posición se les quita.

Las operaciones que he practicado de diciembre de 1934 a agosto de 1941, sin tener un sólo accidente, son las que a continuación se citan:

Tiroidectomías.
Amputaciones de seno.
Lobectomías.
Neumotomía.
Toracoplastías.
Intervenciones quirúrgicas en el maxilar superior.
En el maxilar inferior.

Uranoestafilorrafias y plastías de la cara.
Extirpaciones de tumores de la parótida.
Faringectomía.
Extirpaciones de tumores del cuello.
Craniectomías.
Extirpaciones de tumores de la órbita.
Intervenciones en el miembro superior.
Enucleación de ojo.
Esofagoplastías.
Vaciamiento petro-mastoideos.
Simpatectomías cervicales.
Ligadurias de carótida.
Intervenciones en la cavidad bucal.
Tratamiento de cicatriz viciosa del cuello.
Extirpación de tumor tímico.
Operaciones en total.

En próxima comunicación completaré el estudio, por ahora incompleto, procurando dar la fisiología, las indicaciones, contraindicaciones, etc., pues mi inención por ahora es, como al principio dije, fundar la prioridad de mi procedimiento.

RÉSUMÉ

On fait une étude de l'évolution de l'anesthésie rachidienne généralisée. On décrit la technique personnelle de l'auteur, et on indique en quoi cette technique personnelle diffère des autres. On classifie 1,500 operations de l'auteur, sur la tête, le cou et le thorax, dans lesquelles il eut recours à sa méthode.

SUMARIO

Se hace un estudio de la evolución de la raqui-analgesia generalizada. Se describe técnica original del autor y se llama la atención sobre la diferencia existente entre dicho método y los demás. Se anotan 1,500 operaciones de cabeza, cuello y tórax, que el autor ha efectuado de conformidad con su técnica.

Выводы

Автор, касаясь развития техники спинно-мозговой анестезии, описывает предлагаемый им метод. Последний был успешно применен в 1500 операциях на голове, шее и гортани.

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(Continued from page 220)

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(Continued on page 247)

On the Occurrence of Pseudotumors in the Synovial Membrane of the Knee Joint*

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JERUSALEM, PALESTINE

THE surgeon is confronted with a great amount of diagnostic as well as therapeutic difficulty in chronic affections of the knee joint. Particularly rare conditions are the intra-articulary tumors and tumorlike growths. Although in the literature a number of fibromas, lipomas, chondromas, myxomas, angiomas, etc., of the knee joint have been reported (Strauss,[22] White,[26] Lewis and Geschickter,[9] Eggers,[6] Bertelsmann[2] *et al.*) these formations cannot be considered as articular diseases in the strictest sense, since they take their origin from osseous, cartilaginous or fibrous tissue, and it is merely their localization that connects them with the knee joint.

Actual articular tumors are, therefore, those growths which arise from the synovial membrane. The number of these genuine tumors reported is very small, and opinions differ extremely as to their histopathologic classification, which is, however, of only secondary importance to the clinician. We therefore refer the reader to the excellent detailed publications on this subject by King,[10, 11] Berger[1] *et al.*, in which these problems are discussed from the pathologic viewpoint.

Considering the fact that genuine as well as pseudoblastomatous processes developing on the synovial membrane of the knee joint occur very rarely, and that their diagnosis and treatment may become important in the clinical field, too, we are reporting on two cases of this kind which we recently had the opportunity of observing.

CASE REPORTS

Case 1. The patient, an agricultural worker, aged 17, came from a healthy family and had always been healthy himself. Two years previously, following rather unusual exertion during his work, his left knee joint suddenly became painful and swollen and could be moved only with difficulty. Particularly troublesome was a sensation of weakness while walking. There was no temperature nor general symptoms of any kind. An effusion into the knee joint was diagnosed. Each puncturing (about fifteen in all) brought forth a considerable amount of brownish yellow fluid. It was assumed that a fungus might be present. The patient was therefore put into a plaster dressing. The condition slightly improved under physical therapy. For about one year the patient was able to work again. Then the knee joint began to swell again, this time without pain. He was admitted to a hospital, where a diagnostic excision was carried out. A malignant tumor being diagnosed, amputation of the leg was suggested. The patient, however, refused to have his leg removed. After another few diagnostic excisions, the results of which remained doubtful, he was admitted to our department.

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*From the Surgical Department, Hadassah University Hospital.

State on Admission. The patient showed the development corresponding to his age. Heart and lungs were healthy, there being no symptoms suggestive of tuberculosis. Temperature was normal. His left knee joint was markedly distended, particularly in the area of the upper recess. (Circumference above the patella was 37.5 cm. as against 34 cm. on the normal side.) There was a definite effusion with fluctuation. The area of the articular space was tender and gave pain on flexion. Active movements could be executed only to a limited extent. There was, moreover, marked atrophy of the quadriceps. Roentgenograms showed nothing abnormal. Aspiration revealed a dark brown fluid which proved to be sterile. The animal experiments were negative. After aspiration the swelling of the region of the upper recess remained almost unchanged, and palpation showed cushion-like elasticity with pseudofluctuation. Diagnosis: synovitis villosa.

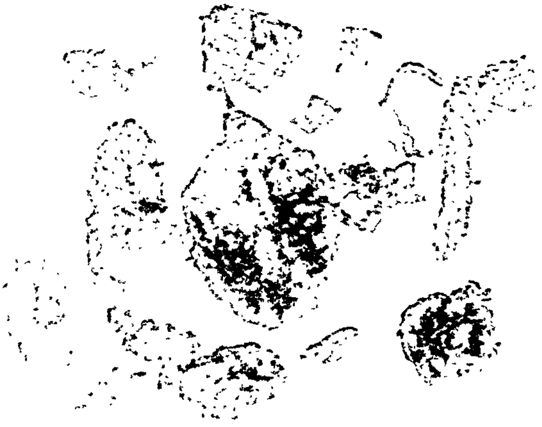

Fig. 1. (Case 1) View of entire surgical specimen.

Operation (F. Mandl). Medial parapatellary arthrotomy was carried out under spinal anesthesia. After the articular capsule had been opened, a large quantity of dark brown viscous fluid welled up. The synovial membrane was found to be thickened to many times its normal size; was dark brownish red in color, hemorrhagic and almost entirely covered with masses of proliferated brownish villi of various sizes and shapes. The articular surfaces as well as the semilunar cartilages and the ligaments were in absolutely normal condition. The villous proliferation and the synovial membrane were radically removed, the joint closed and placed on a plaster splint.

On the eighth day after operation, the splint was removed. The wound had healed by first intention. The knee joint was then exercised, and after-treatment with roentgen rays was given. On the seventeenth day after the operation the patient was dismissed with his knee joint restored to normal function (110° of flexion were possible) and no further symptoms.

After six months follow-up examination showed no effusion, no swelling, no pain; the motility of the joint was in perfect order, and the patient was able to work. Eighteen months after the operation another follow-up examination showed that the patient was absolutely without trouble, and that the muscular atrophy had also disappeared.

Histopathologic Examination. The extirpated specimen consisted of a number of tissue fragments varying in size and thickness, brownish-yellow intermingled with some lighter patches (Fig. 1). The surface facing the interior of the joint was markedly villous in its structure, almost resembling a placental surface. The villi had a multilayered epithelial cover. The stroma consisted of a rather coarse-meshed fibrous structure containing a great number of blood vessels, lymphocytes and plasma cells, and in addition an iron-containing pigment. In the wider villi there were some islets of lighter cells, the nuclei being centrally situated and rich in chromatin, with a finely honeycombed protoplasm. In all of the villi a dark brown pigment was present, surrounded by giant cells.

In this case we were considering an inflammatory hypertrophic process of nonspecific nature, taking its origin from the synovial membrane.

Case 2. The patient, a woman aged 32, came from a healthy family. Twelve years previously she had had frequent tonsillitis and about two years later a severe attack of articular rheumatism, localized particularly in the knee and wrist joints. On these grounds, tonsillectomy was performed, and she had no trouble for three years. Seven years previously the symptoms of both knee joints reappeared, particularly on the right. After two years the right knee joint became swollen and she had severe pain, but no temperature. The doctor diagnosed an effusion into the knee joint and gave physical treatment but with no particular success.

About four years ago aspiration therapy of the joint was started. A total of thirty puncturings were made, and 100-200 cc. of hemorrhagic fluid was aspirated at a time. No improvement followed this procedure. The joint became swollen again and again with great pain, so that the patient could not move the knee. Roentgenograms revealed no pathologic findings. Two years previously she started running a subfebrile temperature. Roentgen-ray examination of the lungs was normal. Large medial arthrotomy was carried out, since an injury to the semilunar cartilage was assumed to be present. The medial cartilage was apparently removed. After the operation the swelling decreased and the patient felt better. After six months, however, the old trouble reappeared. Aspiration. physical therapy, roentgen-ray treatment gave no results. Eventually the patient w admitted to our department.

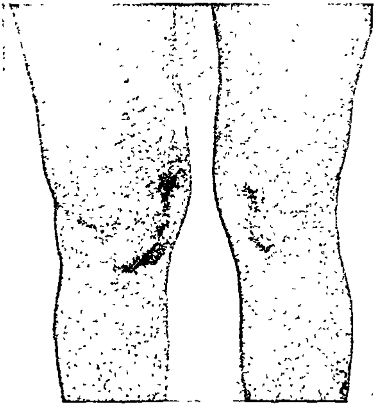

Fig. 2. (Case 2) General aspect of the knees (see text for explanation).

State on Admission. The patient was in good general condition (habitus asthenicus The lungs were normal. The heart gave loud presystolic murmur over all orifices. Tl blood pressure was 130/85. The blood pictur the sedimentation rate and urinalysis were a normal. The temperature was normal. Tl right knee joint was markedly swollen, pa ticularly in its upper portion. The upper r cess was especially involved (Fig. 2). The: was a diffuse, cushion-like swelling wi pseudofluctuation. Even after aspiration the fluid, the distension did not lessen. Tl aspirated fluid was brownish red, viscous an proved to be sterile. On the medial sic there was an old operation scar about 20 cr long. Circumference of the joint above th patella was 38 (34) cm., below it 34 (31) cm Active as well as passive movements were onl slightly hampered. There was moderat atrophy of the quadriceps muscles. Roent genograms revealed no pathologic changes o the various portions of the joint. Diagnosis synovial tumor.

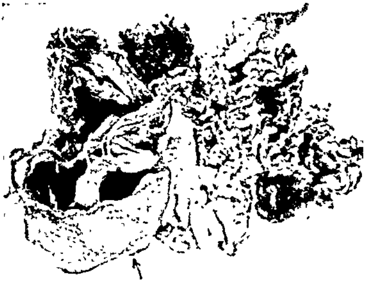

Fig. 3. (Case 2) View of entire surgical specimen.

Operation (F. Mandl). Medial arthrotom under spinal anesthesia was performed in th situation of the old S-incision. The skin a well as the synovia proved to e very thin owing to the per [illegible] re [illegible] of an sion. Then the [illegible] op and the patella [illegible] pe a tumor nearly [illegible] wni yellow color, [illegible] f membrane of the upper recess, which was completely filled by it, and protruding into the articular cavity. The growth was firmly fixed to the synovial membrane over a wide area so that it could not be extirpated without removing, at the same time, the whole of the synovial membrane of this region. Distal to the tumor the synovial membrane showed dark brown discoloration, marked fraying and, in some places, villous formations. That part of the synovial membrane which showed these changes was excised together with the tumor. The joint was then closed with a multilayered suture, and a splint dressing was applied.

After ten days the splint was removed. The wound had healed by first intention. Knee exercises were started when the patient was out of bed, and after-treatment with roentgen rays was given. On the twenty-eighth day after operation the patient was dismissed with a normally functioning knee joint.

Follow-up examination after six months showed *no trouble whatever, no effusion, no muscular atrophy.*

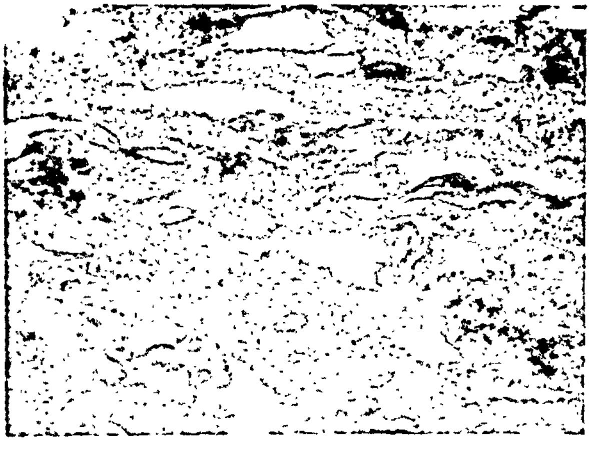

Fig. 4. Low power view showing typical appearance of synovioma. Vascularity and numerous spaces lined by cells similar to synovial cells are also shown.

Histopathologic Examination (Dr. Ungar*). The extirpated specimen was a soft saclike formation the size of a mandarin, representing the entire synovial *membrane of the upper* recess, from the articular surface of which the tumor had developed (Fig. 3). The tissue was soft and of a brownish yellow color. On the cut surface there were yellowish foci of indefinite size, irregularly distributed.

Microscopically, the tissue proved to be rich in cells as well as arterial and venous blood vessels. Rather large cavities, though of varying size, were irregularly scattered throughout the tissue. Into the lumina of some of them papillary formations projected (Fig. 4). They were lined by endothelium, the cells of which were similar to those of the synovial membrane itself, though frequently of a higher type. In no place was any communication between the above-described cavities and the surface of the synovial membrane to be found.

Generally, the cells of this tissue belonged to three groups:

1. Histiocytelike elements, as usually found in synovial membranes of the type rich in cells (Fig. 5).

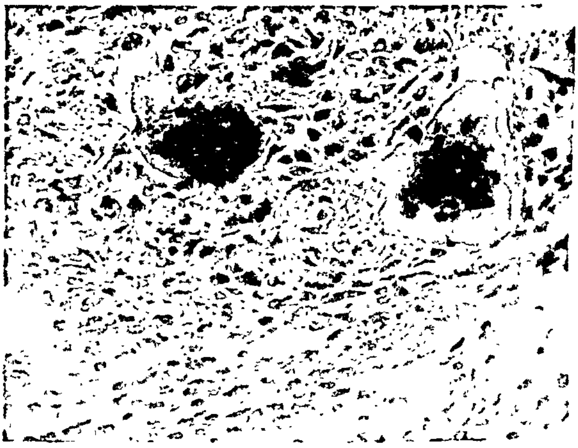

Fig. 5. Showing the histiocytic character of the elements and giant cells of nonspecific type under high power.

2. Foam cells, in the protoplasm of which were imbedded lipoidlike substances stainable with sudan III. There were rather large groups of these cells, corresponding *to the* yellowish foci which had been apparent to the naked eye on the cut surface (Fig. 6).

3. Some single giant cells (Fig. 5) containing two to six irregularly distributed nuclei (no resemblance to osteoclasts). All these cell types were imbedded in a stroma consisting of fine fibrils, becoming denser and thicker around the blood vessels. In these areas a good number of the above-described cell types were found as far as the immediate neighborhood of the adventitia of the blood vessels.

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*I am greatly indebted to Dr. H. Ungar and Dr. [illegible] Hebrew University [illegible] Franckl, for [illegible]

There were no signs of rapid growth (mitoses, polymorphia). It was impossible to decide whether it was a hyperplastic or neoplastic process we were dealing with.

HISTOPATHOLOGIC ASPECTS

Although the two cases greatly resemble each other as to their clinical features, there are marked discrepancies in a histopathologic respect.

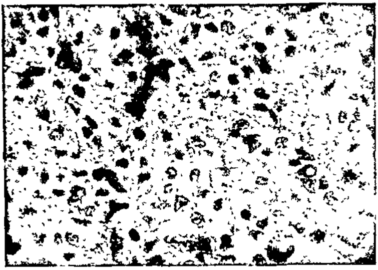

Fig. 6. Field under higher magnification from "yellowish areas" showing foam cells.

Case 1 without doubt comes under the heading of chronic inflammatory diseases of the synovial membrane. In the literature some similar cases are reported. Thus Dowd[5] described a case of "villous arthritis of the knee" in which histologic differentiation from a giant cell sarcoma was very difficult. The normal function of the joint was completely restored by extirpation of the synovial membrane.

"Polyarthritis chronica villosa" described by Schueller[20] is—as may be seen from the name—a polyarthritic process. It presents inflammatory hypertrophic proliferation of the synovia, producing villi and fringes, and is assumed to be of infectious nature. According to the information given by the author, this process invariably involves several joints simultaneously.

Koch,[13] describing "arthritis hemorrhagica chronica," also reported upon pathologic changes developing in the synovial membrane of the knee joint villi formation, however, was completel absent.

Mandl[14, 15] reported on three cases o inflammatory chronic synovial affectio of the knee joint which, clinically, als gave rise to a suspicion of the presenc of a tumor. All three cases were cure by operation. In one of them a secon operation had to be performed, as th symptoms recurred. A fourth case als belonging to this group was reported o by Schajowicz.[19]

Mandl introduced the term "synoviti villosa hemorrhagica chronica" for case of this type. In our opinion, this term applies to our *Case 1*.

The classification of our second case i fraught with a greater amount of difficulty. The intricate nature of its histologic appearance makes it extremel difficult to decide whether it represent a genuine blastoma or an inflammator hyperplastic process.

Looking for similar cases in the literature, we first of all come across the group of xanthomatous giant cell tumor formerly known as "benign xanthomatous giant cell sarcomas." These growth are by no means rare in the pathology of the synovial membrane, tendon sheaths and bursae, and their occurrence has been deemed a characteristic feature of these structures.

Much thought has been given to the so-called xanthomatous giant cell tumors of the synovial membrane of the knee joint, in a clinical as well as histopathologic respect, by a number of authors (Sonntag,[21] Frangenheim,[8] Broders,[4] Ely,[7] King,[10, 11] Tourneux,[24] Razemon and Bizard,[18] Morton,[16] Berger[1] *et al.*). Frequently as they are discussed, however, their etiology remains obscure. Several workers consider them the symptoms of a chronic disturbance of the cholesterin metabolism. Others believe them to be genuine blastomas. Still others assume that they develop on the grounds of chronic traumatism, and think themselves entitled to call them "granulation tumors." According to Wegelin *et al.*,[25] they represent an inflammatory absorptive process resulting from trifling traumatous hemorrhages into the synovia. It is, as a matter of fact, generally known that xanthoma cells frequently occur in connection with inflammatory processes and that they are not found to appear as the elements of genuine blastomas. That giant cells are frequently met within inflammatory absorptive processes is a well-established fact.

Our *Case 2* presents, as a special feature, the presence of cavities (described in the histopathological notes; see also Fig. 5). These cavities are lined by an endothelial layer the cells of which reemble those of the synovial membrane. ing[10, 11] also encountered cavities of this type in one case, describing them as "synovial spaces." Out of a series of eleven xanthomatous giant cell tumors of the synovial membrane, Berger[1] succeeded in one case only in finding these "synovial cavities." This author considers the presence of these formations as a definite histologic proof of the fact that the growth actually takes its origin from the synovial membrane and believes their occurrence to be an extremely rare event. According to Berger's classification, our *Case 2* (also that reported by King) should be considered as a "synovial histocytoma with predominating histiocytic features and of undetermined hyperplastic or neoplastic origin."

CLINICAL ASPECTS

Having discussed the histopathologic properties and discrepancies of our two cases, we now return to the clinical field. As to their histories, both patients were young, healthy individuals. In the first case it was a trauma, in the second a chronic rheumatic infection that preceded the onset of the knee affection. In both cases we find the chronic recurring articular effusion, reaccumulating after every attempt at aspiration. The aspirated fluid was of a serous-hemorrhagic nature and sterile in both cases. The knee joints were found particularly swollen in their suprapatellar regions, the circumference of the affected sides being larger than normal by several cm. Even immediately after aspiration the circumference of the joints, particularly in the region of the upper recess, remained considerably increased. Palpation of this area showed a cushion-like swelling with pseudofluctuation in both cases. The quadriceps muscles proved to be atrophic, which made the swelling of the upper part of the knee joint all the more evident (Fig. 2).

The joint motion was certainly reduced, though only to a comparatively small degree, and pain appeared only after long periods of walking. The articular capsule was tender on pressure. Temperature as well as general symptoms were completely absent. The roentgen-ray appearance showed no pathologic features. The clinical picture, therefore, had all the characteristics of a chronic synovial affection.

Differential diagnosis is fraught with a great amount of difficulty. In some of the cases of synovitis villosa reported upon in the literature the presence of a fungus was diagnosed, as was also the case with one of our patients. In some cases the presence of a tumor was suspected, while in others injury to the semilunar cartilages was thought possible, so that one of the cartilages was extirpated. Tuberculous articular processes, in our opinion, can easily be eliminated on the grounds of the general clinical appearance.

The presence of a meniscus injury may also be neglected, since there are no symptoms of locking or blockage, while there is, on the other hand, the cushion-like swelling. Synovitis villosa may, as a matter of fact, through the presence of pedunculated villi, produce locking of the joint, while predunculated synovial tumor may also give rise to the symptoms of blockage. Generally, however, meniscus injury can easily be eliminated, particularly on the strength of the history.

The frequent occurrence of tuberculous affections of the knee joint, on the one hand, and of injury to the semilunar cartilages, on the other, and the extremely rare occurrence of the pseudotumors described above, make it almost impossible to lay down definite differential diagnostic rules. Only the following may be said: Should there be a chronic recurring serous-hemorrhagic effusion into the knee joint, accompanied by the described symptoms of a chronic synovial affection, and the characteristic cushionlike swelling together with pseudofluctuation (even subsequent to aspiration), the conditions referred to above should be considered as possibly being present.

As to therapy, only the operative procedure (which is generally the sole means of establishing a definite diagnosis) should be considered. The best method is to flap open the joint by a large medial arthrotomy. If the process is well defined, excision of the affected portion of the synovial membrane, particularly in the region of the upper recess, far into the healthy tissue, will suffice. In the diffuse types of synovitis villosa chronica, total synovialectomy, if necessary adding a lateral incision, should be performed.

Prognosis is favorable. Relapses have, as a matter of fact, been described. A sufficiently radical operation will, however, help to dispose of this possibility. In both our cases, as a prophylactic measure, we gave after-treatment with roentgen rays, and we recommend this method in all similar cases.

SUMMARY

Two cases of pseudotumor formation in the synovial membrane of the knee joint are reported, one a case of synovitis villosa hemorrhagica chronica and the other a benign synovial histiocytoma. The clinical as well as the histopathologic properties of these formations are discussed and their extremely rare occurrence—as supported by the literature—is pointed out.

Differential diagnosis is difficult. Therapy consists solely in operation, though after-treatment with roentgen rays is advised. Prognosis is favorable.

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RÉSUMÉ

Deux cas de formation de pseudotumeurs dans la membrane sinoviale de l'articulation du genou sont décrits, un, un cas de sinovite villeuse hémorragique chronique et l'autre un histiocytome sinovial bénin. Les propriétés cliniques et histopathologiques de ces formations sont discutées et leur extrême rarité

vient mise en rélief, comme on démontre de la litérature.

Le diagnostique différentiel est difficile. La thérapie consiste seulement dans l'opération, quoiqu'elle soit conseillée après traitement avec les rayons roentgen. Le prognostique est favorable.

SUMARIO

Se dan a conocer dos casos de formación pseudo-tumoral en la membrana sinovial de la articulación de la rodilla; en uno de ellos se trató de una sinovitis vellosa hemorrágica crónica y en el otro caso de un histiocitoma sinovial benigno. Se discuten los síntomas clínicos así como la histopatología y se señala la rara frecuencia con que se presentan estas formaciones.

Es difícil el diagnóstico diferencial. La terapéutica consiste solamente en la operación aún cuando después se aconseja el tratamiento de rayos roentgen. El pronóstico es favorable.

Выводы

Автор дает описание двух случаев опухоли, возникшей из синовальной оболочки коленного сустава. Автор также приводит случай синовальной ворсичатой хронической геморрагии и доброкачественной синовальной гистиоцитомы. На основании литературных данных автор относит их к редким заболеваниям.

DOMINIQUE-JEAN LARREY

(Continued from page 218)

the author's collection, written to Larrey by Napoleon's brother Joseph from London, dated June 15, 1840. The translation of the letter follows:

> London, June 15, 1840
>
> Baron:
>
> I am living in the city, but I am on the point of establishing myself in the country, where I would like to have a doctor live with me who would have enough experience to take charge of my health, which has always been good, but which at our age is beginning to deteriorate, although it has not as yet been greatly affected. I would want him to take charge not only of my health, but of that of the persons who live with me; I would like him to be both doctor and surgeon. I will give him board and lodging. What salary do you think I should pay him? I would like him to be unmarried and not more than 45 years old.
>
> As always, Sir,
> Your affectionate
> Joseph

Joseph Bonaparte's exactions from his medical adviser pique our interest. He desires a physician who would embody the following: be a specialist in geriatrics; one willing to minister to "group medicine," and be conversant with medicine and surgery alike, etc. From his stipulations about allowing this versatile health adviser board, lodging and a salary to be suggested by Larrey, Joseph also evinces that even royalty was not eager to be too liberal with medical fees. Joseph also stresses that the doctor must not be married and specifies an age limit. It seems there is only one thing that he does not specify, and that is the religion of the doctor. That is much to Joseph's credit; perhaps he may have been influenced in that by the Revolutionary period which France had just gone through and the democratic attitude of the English among whom he had been living in London.

Larrey's admiration for Joseph's brother was unbounded. When Napoleon's ashes were brought to Paris in 1840, Larrey, about 70 years old at that time, walked the entire way to the *Invalides* with his head uncovered and weeping. Napoleon's will is adequate testimony to the esteem in which the "Little Corporal" held Larrey. *"I leave to the surgeon-in-chief Larrey 100,000 francs. He is the most virtuous man I have ever known."* The last sentence was engraved on Larrey's tombstone in Père-Lachaise.

A Hypernephroid Tumor of the Right Kidney, with a Metastatic Lesion in the Right Scapula

CHARLES EDWARD NAGEL, Ph.G., M.D., F.A.C.S., F.I.C.S.
GREAT FALLS, MONTANA

As ONE becomes more familiar with malignant disease, gained through experience over a period of years, the words of Areatus become more appreciated. Areatus said, "When he can no further aid, the physician alone can still mourn as a man with his incurable patient: this is the physician's lot." Especially during the past several months, his words have been deeply impressed upon me.

My own experience with surgery of the kidney, has been that of a general surgeon, with malignancies of the kidney very limited. One case was in a child nine months old. The specimen weighed 1125 gm. Pathologic histology was that of a sarcoma, mixed type, grade three malignancy. Outcome fatal. In the case under consideration, a white male aged 68 had a condition complicated by aortic regurgitation and auricular fibrillation; he is living and convalescent.

The most recent survey of interscapulothoracic amputations for malignancy of the shoulder girdle has been accomplished by Pack *et al.*[1] with a rather complete historical and factual report of cases by this group. It would lend nothing to this report to review these articles. Strode *et al.*[2] in a recent article have reported two interesting cases, while Milch[3] reported a case in which this amputation was resorted to for a tuberculous shoulder girdle. I find no record of surgery of such magnitude in the archives of the Columbus hospital.

Suffice it to say that the procedure can be very difficult, that it can be quite formidable and that it is quite mutilating. Yet it has its place and it is justifiable in the following conditions: (1) severe and extensive injuries of the shoulder girdle; (2) acute and chronic infections; and (3) malignancies of the shoulder girdle.

As to the etiology of malignancies, I believe the iconoclastic attitude is the best. Admitting that much research work has been done, little if anything has been added to the conception offered by Senn[4]: "Every tumor is the product of tissue proliferation of a congenital or postnatal matrix of embryonic cells, aroused into activity by a general or local physiologic stimulation or by congenital or acquired abnormal conditions in its immediate environment." Cramer[5] has but elaborated upon this older conception. Little would be gained by reviewing countless other theories in a practical paper and by one who lays no claim to specialization.

CASE REPORT

History: D. R. L., aged 68, white, male, married, was admitted to the Columbus Hospital, March 21, 1942.

Chief complaint and present illness: In late 1940 and early 1941, he was treated with tablets for a prostatic condition and bloody urine. Cystoscopic findings were negative for malignancy of prostate or bladder. At this time also, he was taking treatment for a painful right shoulder, for which he went to a local hot spring, and while there an osteopath manipulated his stiffening shoulder. Early in 1941, he fell and injured the right shoulder and fell again in the autumn of 1941, injuring the same shoulder. He saw another osteopath, who made a diagnosis of dislocation. After trying unsuccessfully to reduce it he referred him to a physician. The shoulder was very painful and fixed. Plates taken at that time showed marked destruction of the glenoid cavity and blade of scapula. During the four months prior to his admission he stated that he lost 43 pounds and that he also noticed a mass in his right flank, which seemed to be growing rapidly. Otherwise he felt fine.

Past illness, operations and injuries: Measles, chickenpox. Denied venereal disease. Appendectomy, 1939. Right inguinal hernia of several years duration.

Family history: Mother alive, 96. Father alive, 94. One brother and one sister alive and well.

Personal history: Nocturia two or three times a night. Bowels costive. Digestion poor, troubled with sour belching. Loss of 43 pounds last four months.

Physical examination: A male, white in the late 60's, who except for a badly deformed and fixed shoulder, appears neither acutely or chronically ill. Upon examination has the following positive findings: Arcus seniles. Upper and lower plates. Thoracic cage normal in contour except for the right shoulder girdle, which is considerably enlarged and fixed; carrying forearm at right angle to arm. Muscle turgor poor throughout body. The tumor is in the region of the deltoid and scapula, very firm and considerably warmer to the touch than the left. Atrophy of muscles of the forearm, probably due to disuse. Heart is moderately enlarged and there is a definite murmur of aortic regurgitation, pulse is definitely of the Corrigan type. Arteries are sclerosed and the pressure in the left arm is 200/64. Abdomen, beginning in the left lower quadrant and moving counterclockwise; the examination is essentially negative until one reaches the upper right quadrant where one feels a definite rounded mass, which does not appear to be fixed to the liver; it falls to the left when the patient rests on his left side. Bimanual, exerting pressure in the renal triangle; one derives the sense of tumor motion; it can be moved back and forth between the palpating hands; it is not tender. In the right lower quadrant is a scar of the previous appendectomy; and in the right inguinal canal there is a definite bulge of an indirect hernia. Lower extremities normal.

Impression: We have here a male who for at least a year has suffered from pain and disuse of the right shoulder; there is also a history of hematuria of unestablished etiology; and there is a history of two injuries, not counting the additional trauma instituted by the osteopaths; and more recently the history of rapid weight loss, with the patient becoming aware of a tumor mass in the right flank. Obviously, since there is no history of jaundice and the liver does not suggest cirrhosis, we are dealing with a tumor, either of retroperitoneal origin or of the kidney. Retroperitoneal tumors are not usually freely movable. The tumor mass is firm, not cystic and therefore cannot be readily considered as a massive hydronephrotic or possibly polycystic kidney. The mass is firm and nodular. It is probably a malignancy of the kidney. The age of the patient tends to rule out the mixed type of malignant kidney, but comes well within the age of the hypernephroid type of tumor. The shoulder may be one of metastatic origin. This supposition is based on the fact that other than a history of hematuria, cause of which was not established, it fits in well with the insidious picture of hypernephroid tumors of the kidney.

Presumptive diagnosis: Malignant tumor of the right kidney; adenocarcinoma; hypernephroma, right shoulder, metastatic from kidney; aortic regurgitation; generalized arteriosclerosis.

Treatment suggested was that of x-ray therapy to tumor mass in shoulder girdle, followed by (1) nephrectomy and (2) removal of the shoulder. The patient was advised of the seriousness of both procedures, but preferred to take the risk. The treatment was, therefore, subsequently carried out.

X-ray therapy was given using 200 KVP 20 MA. 50 TSD. 20 Cm. Aperture, 1.5 mm. copper and 1 mm. aluminum. Fifteen minutes, alternately over the posterior and anterior scapular regions. These were started on March 24 and completed on April 7, 1942, or a total of 13 treatments equivalent to 13 × 258 or 3350 R. During this time the patient was hospitalized and essential studies accomplished.

Clinical laboratory reports: Urinalysis: 3.21.42; sp. gr. 1.011 alkaline; 20 — 25 rbc. 5.15.42; sp. gr. 1013. alkaline; 1+ sugar. Amorphous phosphates and triple phosphate crystals. Interval urine of little consequence.

X-ray studies: The original plate taken in stereo at the Columbus on March 11, 1942. It showed the right shoulder, part of the cervical vertebrae, upper thoracic cage and the humerus, clavicle and scapula. The entire glenoid cavity and contiguous portion of the blade of the scapula destroyed. On March 22, 1942, chest and abdomen: No evidence of metastasis to bones. No mass in abdomen visualized. March 25, 1942, KUB and KUB with dye; very large shadow corresponding to right kidney area visualized. Left kidney also very large and low in position. No dye seen in kidneys at any time, but dye was visualized in bladder at end of one hour. May 14, 1942, chest: No evidence of metastasis in pulmonary fields. May 13, 1942. Scapula with tumor and upper third of humerus, after removal and dissection of area. Plate shows upper third of humerus, some fragmented bone in region of the upper border of the scapula and only about one third of the scapula blade composed of the axillary border, vertebral border and the inferior angle. The clavicle is not visualized since in the removal of the shoulder, the outer two-thirds had been removed to facilitate the exposure of the brachial plexus and the subclavian vein and artery.

Table I

Hematology:	3.24.42;	3,87m.	Hgb.	10.4gm.	C. I.	.85	10,900wbc.	85% P.	14 L.	0E.	0B.
	4. 7.42;	4,09m.		11.5		.89	4,600	83	16		1
	5.13.42;	3,36m.		10.0		.94	8,750	67	28	3	1
	5.30.42;										

Coagulation time: 4½ min. Blood Typing: International "B," Moss 111.

Blood Chemistries:

	B U N.	N P N.	Creat.	Fibrin	Albumin	Globulin	Total Prot.	Ratio A/G
NORMAL	10–15	25–35	1–2		4.5–5.5	1.5–3	6–8	1.5/2.5:1
3.24.42:	21.2	40.5	1.8					
4. 8.42:	30.4	44.7	2.01	0.807	3.349	5.093	9.249	1.5/1.7/1:3:1
5.11.42:	17.7	34.6	1.13	0.86	4.88	4.99	10.73	(1.7:1) (3.1) (1:1.02)

Electrocardiogram: March 29, 1942, rhythm irregular, auricular fibrillation; April 14, 1942, inverted "T" in the second, third and fourth leads.

Preoperative care and treatment consisted of every reasonable effort to build up the patient, by diet fortified with vitamins, rest, cardiac support and transfusions of both whole blood and plasma.

Biopsy on March 23, under local anesthesia, consisted of both excision of tissue from the posterior aspect of the tumor mass and aspiration. Too much bleeding resulted and the procedure was stopped.

Nephrectomy was done on April 15, employing cyclopropane, helium and ether. Operative time, 1 hr. 15 min. Lumbar incision was employed.

Gross pathology: The kidney was of unusual size, with the upper pole appearing normal and from above down, the kidney enlarged until a very large bulbous nodular pole had developed. The capsule was very adherent and considerable bleeding was [illegible] bothersome th[illegible] extirpa[illegible]. The hilum and [illegible] obliterated by [illegible] with.

Pulse rate, [illegible]

20, blood [illegible] P

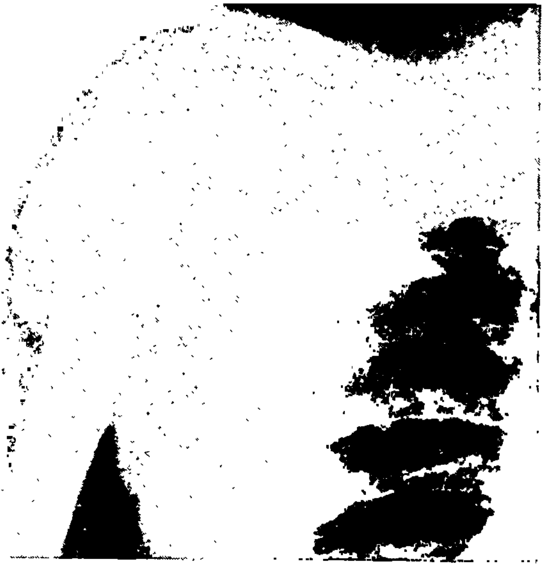

Fig. 1. X-ray picture of right scapula of patient prior to surgical intervention

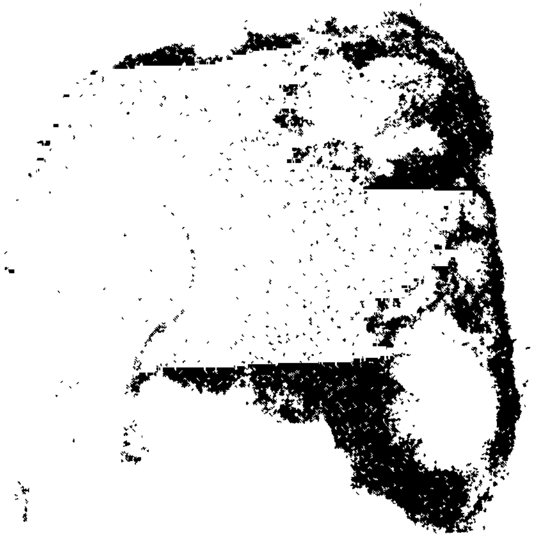

Fig. 2. Specimen removed at operation

clusion 84, respiration, 20, blood pressure, 00/78.

Interscapulothoracic amputation on May 13, 1942, under cyclopropane, helium and ether with operative time 1 hr. and 10 min. Technic of Berger-Faraboeuf. Except for a moderately severe amount of bleeding, it was relatively simple. Pulse at beginning of operation 72, respirations 18; at conclusion pulse 112 and respirations 28.

This procedure was apparently somewhat more shocking than had been the nephrectomy. However, he responded favorably to immediate shock treatment as the postoperative survey indicates; and which along with the one for the nephrectomy is reviewed.

Postoperative nephrectomy: April 14, 1942: 500 cc. citrated blood and 500 cc. normal saline. April 15, 1942: 500 cc. blood plasma and 1000 cc. 5 per cent glucose in normal saline and 1000 cc. 10 per cent glucose in normal saline. April 16, 1942: 10 per cent glucose in normal saline. April 17, 1942: Blood plasma 500 cc. and 500 cc. normal saline: 1000 cc. 5 per cent glucose in normal saline. April 18, 1942: 1000 normal saline with 5 per cent glucose. Wangensteen suction was employed to avoid distention. Fluids by mouth were increased as tolerated and diet increased as indicated. In addition, coramine, ampules 1, was given for six doses postoperatively along with digalen, ampules 1, intramuscularly, until digitora could be tolerated by mouth. Sulfathiazole, a total of 8 gm., was given, due to a slight purulent discharge from nephrectomy wound. Only twice during the period did the temperature reach 101.6° by rectum. The urine was free of RBC since surgery.

Postoperative amputation: Prior to surgery, the patient received 500 cc. of citrated blood, on the morning of May 14, 1942. Due to the blood fluid loss, moderate shock had to be combated and for this purpose, coramine, ampules 1, was given immediately on the table and a second was given with 500 cc. blood plasma and 500 cc. 5 per cent glucose in normal saline. That afternoon another 1000 cc. 10 per cent glucose in normal saline was given. A total of 5 cc. of coramine postoperatively were given. Until the patient could tolerate digitora by mouth, digalen, ampules 1, a total of 15 were given intramuscularly. May 15, 1942: blood plasma 500 cc. were given. Fluids and diet increased as tolerated. The temperature never rose above 100.8.

Pathologic histology reports: Biopsy, March 23, 1942: Aspirated material, blood clot, no abnormal cells found. Small fragment of muscle tissue, no malignant tissue noted. April 14, 1942: kidney greatly enlarged, weighing 907.18 gm. Kidney tissue is replaced by nodular, yellowish white tumor mass, extending down into the pelvis of the kidney.

Microscopic findings: Growth is made up of nests of large cells with clear cytoplasm, and relatively small nuclei. Occasional areas where cells attempt to arrange themselves in the form of tubules are found.

Diagnosis: Clear cell adenocarcinoma of the kidney. May 12, 1942. Upper arm tissue, *gross description:* Tumor growth involving most of the scapula with destruction of bony tissue. *Microscopic findings:* Tumor is composed of nests and of strands of atypical epithelial cells, resembling those found in the kidney tumor of the same patient.

Diagnosis: Metastatic clear cell adenocarcinoma of scapula, metastasized from kidney.

The controversial matter as to whether these tumors are hypernephroma or carcinoma will not be considered here. Stout,[6] in my opinion, has very carefully reviewed this subject and has placed this type of tumor under the generic heading of hypernephroid tumors. As pointed out by him, the bone metastases of the tumor, are of the osteoclastic type, usually highly vascular and in some instances, may be of the pulsating type. In this case to date, no other metastatic focus has been demonstrated; but that is not to be accepted as a criterion of cure. Malignancies are known to be spread: (1) by the blood vascular system; (2) by the lymphatics; (3) by contiguity and probably by all three simultaneously. Therefore metastatic foci may be looked for, and if data on the metastatic lesions are accurate, they can be found in any structure or organ of the body. Prognosis must be guarded. No promise of cure was offered and none expected. It is believed, though, that the patient has been made more comfortable and he will be watched with extreme interest.

General résumé: Considering the age of the patient, the extensiveness of the pathologic lesions and the cardiac complication, the risk was of the gravest sort. All this was explained not only to him, but to the family. He however felt, as did his family, that there was something to gain and little to lose. Personally, I feel that with judicious and careful preparation, one can obtain good temporary results even in the face of a grave risk. My colleagues concurred in this opinion and at least for the time being, results seem to support our contention.

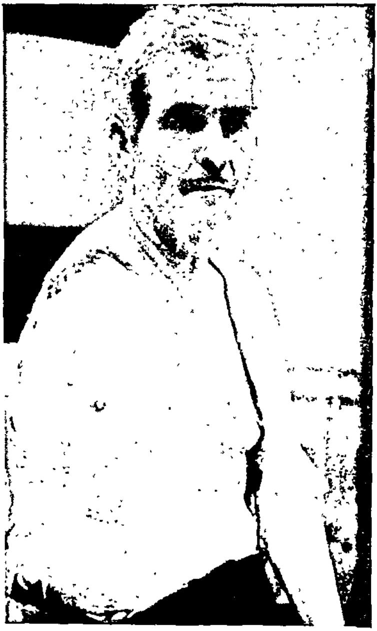

Fig. 3. Appearance of the field of operation following surgery

Cystoscopy: Although no evidence of malignancy of the bladder or the prostate was found on a [illegible] ination, it was deemed [illegible] June 10, the pa[illegible] scoped. A No. 24 sound was passed without difficulty. Catheterization was negative for residual urine. The bladder was normal, except for trabeculations at the base. Ureteral openings appeared normal. Rectally the lateral lobes enlarged two plus, smooth and hard, somewhat nodular. No further intervention appears to be indicated at this time.

SUMMARY

A preliminary report is here offered of a male in the late 60's who had a hypernephroid tumor of the right kidney with a metastatic focus in the right scapula. Complicating the case was an aortic regurgitation and an auricular fibrillation. He survived two major procedures, that of nephrectomy and within a month's time that of interscapulothoracic amputation of the right shoulder girdle.

I wish to thank Doctors T. Walker, C. Little and the Staff on the West Wing of the Columbus Hospital, for their intrest and help in this case.

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RÉSUMÉ

L'auteur nous rapporte un cas d'hypernéphrome du rein droit avec lésion métastatique dans l'omoplate droite, chez un homme âgé de soixante ans. En outre le malade souffrait de régurgitation aortique et de fibrillation auriculaire. Le malade a survécu deux opérations majeures dans l'espace d'un mois: une néphrectomie et une amputation interscapulo-thoracique de l'épaule droite.

SUMARIO

El autor presenta un caso de tumor hipernefroid del riñon derecho con lesión metastática en la escápula derecha en un hombre de 60 años de edad.

El caso estaba complicado con regurgitación aórtica y fibrillación auricular.

El paciente sobrevivio dos operaciones mayores durante un mes: una nefrectomía y una entra-escápulo-torácica amputación circular del hombro derecho.

Выводы

Автор сообщает об опухоли правой почки с метастазом в правой лопатке у мужчины 60 лет. Случай был осложнен фибриллярным сокращением предсердия. Больной перенес две тяжелые операции в течении одного месяца — нефректомию и интерскапулоторакальную ампутацию.

NEWS ITEMS

Dr. A. A. Berg, president-elect of the International College of Surgeons and consulting surgeon at Mt. Sinai Hospital, New York, has recently made a gift for postwar construction of a research laboratory at Mt. Sinai Hospital as a memorial to his brother, Dr. Henry W. Berg. Dr. Henry Berg, a member of the attending staff of the hospital for 40 years, died in 1938, aged 79. Located among Mt. Sinai's 18 buildings, the Henry W. Berg Research Laboratory Building, as it is to be known, will be constructed as soon after the war as materials and labor become available. With the addition of the new building, Mt. Sinai Hospital will be enabled to make its contribution to American leadership in world medicine until European hospitals and scientific centers are rebuilt. Housed in the new building will be departments of bacteriology, pathology, physiology, chemistry, gastro-enterology, cardiology, hematology, endocrinology, metabolism and biophysics. Dr. Berg's gift was hailed by the trustees "as a fitting climax to his half century of medical and humanitarian service to Mt. Sinai." Dr. Berg has been associated with the hospital since his internship there in 1894.

Major Charles Arnold, F.I.C.S., is now stationed in England in charge of the surgical service of a hospital. He was recently the guest of Mr. and Mrs. Hamilton Bailey, F.R.C.S., F.I.C.S.

(Continued on page XI)

Acute Cholecystitis

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A STUDY of the literature in acute cholecystitis discloses that surgeons are still divided as to whether it is best to operate on these cases immediately or after the acute attack subsides. Some have recourse to cholecystectomy, others to cholecystotomy; a number still advise medical measures as the sole treatment.

Among those authorities who advocate immediate or early surgery are Walton, Stone, Heyd, Miller and Judd. The main argument advanced by its opponents is that operation during the early stage entails unwarranted risk and that cholecystectomy is definitely more difficult and more hazardous while the acute inflammation is present.

Results in forty-nine cases of acute cholecystitis are presented in this paper. Three tables are furnished, one showing the time of operation, another the age at operation and the third an analysis of the deaths. Obviously, the clinical judgment of the surgeon is the most important factor in handling this type of case, but clinical judgment can be improved by reports of others, as well as personal experiences.

I am inclined to agree with those who say "once gall-bladder disease, always gall-bladder disease." For this reason, I advise immediate and early surgery in every case of acute cholecystitis. The diagnosis must, however, be based upon a meticulous history, careful physical examination and the usual laboratory studies. Any decision to operate should, of course, be tempered by present conditions, need for supportive therapy and age. Table II shows the truth of the dictum "the older the patient the greater the risk."

Table I

Operation	Time of Operation	No. Cases	Sex Male	 Female	Deaths	Mortality Per Cent
Immediate	12-24 hours	6	4	2	0	0
Early	24-72 hours	28	13	16	2	7
Late	After 3 days	15	7	8	6	40

HISTORY

The patient usually gives a history of selective dyspepsia over a period of years, is past middle age and over weight. Ninety to 94 per cent of them will complain of previous attacks of pain in the upper right quadrant.

The differential diagnosis includes the following: (a) Acute pancreatitis in which the patient is more seriously ill, respirations are labored and cyanosis may exist. Rigidity is less marked and the patient as a rule is in a state of collapse. No mass can be palpated. (b) Perforated duodenal ulcer, where the clinical history usually presents periodic hyperacid *syndrome* and the picture of sudden acute localized pain-subnormal or slightly elevated temperature, with the desire to lie quietly rather than make the slightest motion. (c) In acute appendicitis the onset of pain is usually localized around the umbilicus, later in the right lower quandrant. The temperature is only slightly elevated as a rule. (d) Acute intestinal obstruction presents a somewhat different clinical picture. The pyrexia in acute cholecystitis is more marked. (e) Right renal colic at times simulates biliary colic, whereas the symptoms here are referable to the urinary tract. (f) An early right-sided lobar pneumonia may present more difficulty, though the respiratory rate will be significant.

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*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

Table II

Age Incidence	No. Cases	Sex Male	 Female	Deaths	Mortality Per Cent
30-40	18	10	8	1	5½
41-50	22	10	12	4	18
51-60	7	2	5	2	28
61-70	2	1	1	1	50

SYMPTOMS

In acute cholecystitis the onset is characterized by a pain, usually sharp and lancinating in character. This pain may be referred to the back, epigastric region, under the right scapula or to the cardiac area. This sharp pain usually indicates cystic duct, or common duct obstruction and for a period varying from twelve to twenty-four hours, this is the principal symptom. If the obstruction is not relieved, as happens in most cases, symptoms of infection make their appearance, in the form of temperature varying from 97°-104° F. The pulse rate varies according to the degree of inflammation and toxemia. Nausea or vomiting as a rule are present. The leukocyte count varies from 6000 to 18,000 with a corresponding rise in the differential count. Gage states: "the neutrophile percentage is more indicative of the severity of the inflammatory process within the gall bladder than is the total leukocyte count. Tenderness and rigidity in the right upper quadrant are important clinical findings. A mass may or may not be palpable. Clay-colored stools are seldom present. The clinical indications of perforation or gangrene are a high temperature, increased pulse rate, rising blood count and progressive toxicity of the patient. As the acute condition subsides the temperature drops." Occasionally this occurs and yet the patient may have a gangrenous gall bladder as happened in one of my cases.

ROENTGENOLOGIC ASPECTS OF ACUTE CHOLECYSTITIS

Roentgen-ray examination of the gall bladder aids the clinician by two diagnostic procedures. The first of these is the routine flat-film of the abdomen, whereby the gall-bladder area is studied for the presence or absence of radiopaque shadows. Occasionally empyema of the gall bladder will produce an increased density of sufficient degree to be diagnostic on the plane abdominal roentgenogram. The second procedure, namely, cholecystography, is furnished by supplementing this ordinary roentgenographic study with a contrast media which is selectively eliminated by the liver and concentrated and stored in the gall bladder—the Graham-Cole test. This latter examination is a functional test in that the positive information it reveals is simply whether or not the gall-bladder functions, *i.e.*, concentrates and stores bile and contrast media. So-called "negative stone shadows" or biliary calculi with insufficient calcium content to be revealed on the ordinary flat abdominal film, if present in sufficient amounts, will be indirectly seen by failure of the contrast media to completely and uniformly fill the gall bladder and by virtue of the dye outlining the non-calcified material. Thus, the Graham-Cole test in certain instances demonstrates indirectly the presence or absence of stones as well as the functional state of the gall bladder.

The problem of acute cholecystitis is one in which the roentgenologic examination can be of only limited help. This is clear if one considers the pathologic physiology involved in relation to the roentgen methods just enumerated. In acute cholecystitis water and transudate pass from the wall into the lumen of the gall bladder. This eliminates cholecystography as a useful procedure due to the inability to obtain concentrated contrast media within the gall bladder because of dilution. Experience has shown that the Graham-Cole test or cholecystography is of no value before three weeks following an acute cholecystitis. X-ray examination is limited, therefore, in this condition to the flat-film technic for demonstration of gall stones. The acute swelling of the gall bladder makes even this more difficult for demonstrating very small or less dense stones, for a distended gall bladder tends to obscure such stone shadows by lessening the density differential between the stone and surrounding gall-bladder area.

Yet roentgen examination of the right upper quadrant (flat abdominal film) in the presence of an acute cholecystitis may show star-shaped fissures in calculi which place these calculi directly in the gall bladder and not in the kidney. While it is true that these fissures are of interest chiefly to the roentgenologist, they do localize these calculi as being present only in the gall bladder—valuable information to be obtained from a single flat abdominal film.[1]

However, a precaution which must be kept in mind in roentgenologic interpretation of a film in the presence of acute cholecystitis with cholelithiasis, is the possibility of decalcification of the calculi under these pathologic conditions. Frequently one sees decalcification of the parts of the skeletal system in the presence of an acute inflammatory process and occasionally the inflammatory process of an acute gall bladder will produce a similar type of decalcification of the calculi, to the point where even though these calculi are present they will not be demonstrated roentgenologically.[2]

For the reasons listed above roentgenologic aid in diagnosis of acute cholecystitis either with or without calculi is fairly limited. Factors favoring a roentgen diagnosis are: (1) the possible presence of semi-opaque or opaque stones; (2) the possible presence of star-shaped fissures in these calculi which directly places them in the gall bladder, (3) the density of an empyema of the gall bladder, which will be fairly well outlined on a film of the right upper quadrant. However, factors may be present which cannot [illegible] isu[illegible] d: (1) nonopaque calculi, [illegible] th greater percentage of biliary calculi; and (2) possible decalcification of calculi in the presence of an acute inflammatory process.

PREOPERATIVE TREATMENT

The patient should be brought to the operating room only after having received adequate preoperative treatment. These patients are often dehydrated and have an increased need for sugar. Therefore, it is of vital importance that the fluid balance be restored. This is accomplished by giving intravenously 1000-2000 cc. 10 per cent dextrose alternately with normal saline solution, which will also replenish the chloride loss. A Levine tube with Wangensteen suction apparatus should be introduced to combat vomiting and distention. This may be left *in situ* for the postoperative treatment.

Morphine sulphate with atropine sulphate should be given, in dosage required, according to age, for relief of pain. Hot stupes are of some value in the relief of pain. Vitamin K will help to decrease the clotting time, if the patient is jaundiced, bile salts aid absorption of fat soluble vitamins if they can be given by mouth. Blood transfusions are of great benefit when the patient has toxic hepato-cellular disease and in these cases should be resorted to early.

TYPE OF OPERATION

Experience has shown that cholecystectomy is far superior to cholecystotomy in the acute cases, although it is generally agreed among surgeons that cholecystotomy is the choice in "bad risk" cases. I have performed cholecystectomy in my series, except in three cases, two of these had empyema, the third was a "bad risk" case with perforation at the fundus of the gall bladder and the stones were free in the abdominal cavity. In these three cholecystotomy was done. The common duct should always be explored in cases of acute cholecystitis. When a stone is impacted in the common duct, it must be removed and the duct drained with a proper size T-tube. It is now generally agreed that the advent of Vitamin K and bile salts made cholecystectomy in jaundiced cases a much less dangerous procedure.

I still advocate drainage of the gall bladder fossa following cholecystectomy as the field of operation is seldom free of blood or bile. It may save the necessity of reopening the abdomen and inserting a drain. The convalescent period in the cases drained at time of operation is not changed and the drain may be removed on the fifth or sixth day.

POSTOPERATIVE PERIOD

The majority of cases have a rather stormy postoperative course. Dextrose 10 per cent, 2000 cc. should be given intravenously every twenty-four hours. Morphine sulphate with atropine sulphate, will alleviate the pain and relax the pyloric sphincter. These drugs should be repeated every four hours. Wangensteen suction should be continued as part of the postoperative care. Carbon dioxide-oxygen inhalations during the first twelve hours and the use of the oxygen tent when the respiratory rate rises above 30-34 per minute are of great value in preventing pulmonary complications. After forty-eight hours, lukewarm water may be given, the Levine tube clamped and if no untoward symptoms, such as distention, occur, more fluids can be given by mouth. Should distention occur, removal of clamp will again eliminate these symptoms. On the fourth day, unsweetened tea-gingerale or fat-free broths are tried, followed by removal of a suction tube and a soft diet on the sixth or seventh day.

SUMMARY

1. The mortality rate in acute cholecystitis is lowered by immediate or early operation. The mortality rate increases as age progresses.
2. Cholecystectomy is the choice operation unless the case is a "bad risk." Cholecystotomy is indicated when the patient is aged or when empyema is present.
3. Drainage of gall-bladder fossa following cholecystectomy is of value, as the abdomen may have to be reopened unless it is done.
4. Dextrose solution intravenously pre- and postoperatively are of great value, with blood transfusion if the case warrants. Wangensteen suction relieves distention. Carbon dioxide-oxygen inhalations and the oxygen tent are valuable if signs of pulmonary complications arise.
5. The clinical and laboratory findings are not always indicative of the severity of the pathology present in the gall bladder.
6. Early operation will practically eliminate the hazard of gangrene with perforation.

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Table III

Cause of Death	Age	Early Operation	Late Operation	Pathology
Postoperative Shock	37	yes	no	Acute Cholecystitis with Stone in Common Duct.
Postoperative Pulmonary Embolism	43	no	yes	Acute Cholecystitis with Stone in Cystic Duct.
Postoperative Pulmonary Embolism	68	no	yes	
Peritonitis	55	no	yes	
Lobar Pneumonia	48	yes	no	
Lobar Pneumonia	47	no	yes	
Coronary Thrombosis	59	no	yes	
Atelectasis	45	no	yes	

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RÉSUMÉ

1. L'opération précoce pour la cholécystite aigüe diminue le taux de mortalité. Avec l'âge, cette mortalité augmente.

2. La cholécystectomie est l'opération de choix. Chez les vieillards et en cas d'empyème de la vésicule biliaire, on pratiquera la cholécystostomie.

3. Le drainage de la fosse de la vésicule biliaire est de rigueur. Si ce drainage n'est pas pratiqué on peut être obligé de rouvrir la plaie abdominale.

4. L'injection intravéneuse de solution de dextrose avant et après l'acte opératoire est de valeur. Dans certains cas, on pratiquera la transfusion sanguine. Le suction Wangensteen soulage la distension. Les inhalations du carbone-dioxide-oxygène son utiles en présence de complications pulmonaires.

5. Les symptômes cliniques et les trouvailles du laboratoire ne nous indiquent pas toujours la sévérité des lésions pathologiques des voies biliaires.

6. L'opération précoce élimine presque surement le danger gangrène et de perforation.

SUMARIO

1. La mortalidad en la colecistitis aguda, baja en relación directa a la inmediata o temprana intervención quirúrgica, mientras que la mortalidad aumenta en la vejez.

2. La colecistectomía es la operación de selección, a menos que el caso sea un "mal riesgo"; y la colecistostomía está indicada en los casos de más edad y cuando existe supuración en la vesícula biliar.

3. Drenaje de la fosa de la vesícula biliar en combinación con la colecistectomía tiene mérito para evitar la necesidad de abrir el abdomen nuevamente.

4. El uso de la solución de glucosa por vía entravenosa antes y después de la operación, combinando la transfusión de sangre cuando se júzgue necesario.

La succión de Wangensteen reduce la distención. La tienda de oxigeno son de auxilio cuando síntomas de complicación pulmonar aparecen.

5. Los datos clínicos y los ensayos o pruebas de laboratorios no son siempre indicativos de la severidad de los cambios patológicos en la vesícula biliar.

6. Temprana operación elimina los accidentes y pelígros de gangrena y perforación.

Выводы

1. Смертность при остром холецистите снижается при немедленной или ранней

операции. Смертность повышается с увеличением возраста больных.

2. Холецистэктомия является операцией "выбора", и она не представляет "большого риска." Холецистэктомия показана у больных престарелого возраста или при эмпиеме желчного пузыря.

3. Дренаж ложа желчного пузыря при холецистэктомии имеет важное значение.

4. Большое значение придается введению глюкозы в до или послеоперационном периоде, а также переливанию крови.

При легочных осложнениях большое значение имеет ингаляция кислорода и углекислоты.

5. Клинические и лабораторные данные не всегда правильно характеризуют патологическую картину ложа пузыря.

6. Ранняя операция предупреждает возможность перфорации пузыря.

ACKNOWLEDGMENTS

(Continued from page 247)

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Editorials

The Making of a Surgeon

THE precepts so often reiterated to the young man about to embark on a surgical career or the aspirant seeking the "open sesame" to the surgeon's world are universal in their application.

Dr. Alberto Gutierrez in *De la Formación del Cirujano** (*On the Making of a Surgeon*) has given to the medical student an epitome of the sage advice handed down by teachers of surgery in many medical institutions of many lands. The volume contains no new counsel, but its soundness makes worth while its being brought to the attention not only of the novice, but of the seasoned and experienced surgeon, who occasionally forgets or disregards these dimly heard echoes of his student days.

Dr. Gutierrez begins by stressing some of the *should nots.* The aspirant to a surgical career should not be motivated by the fact that monetary gains are greater in surgery, but by natural aptitude for this branch of medicine. He must not be a poor diagnostician, inept in technic, ignorant of anatomy, careless and not sure of himself. Nor should he begin to operate before he has mastered the fundamentals.

On the other hand, the novice should attach himself to an upright and honest surgeon, first observing, then aiding him and finally operating under his guidance. He should watch other surgeons operate and exchange ideas with those more experienced than he.

The successful surgeon must have as qualifications not only good technic but adequate knowledge of embryology, anatomy, physiology and pathology. Essential in abdominal surgery is a knowledge of peritoneo-intestinal morphogenesis. To learn anatomy thoroughly, he must go to the dissecting room. To master surgical technic, the student must haunt the amphitheater and practice on animals. His technic must be adaptable to various emergencies which may arise.

Calmness, self-control and mastery of self are basic requirements. The good surgeon commands daring linked with prudence. His respect for the patient's life must be paramount—he must not operate unless circumstances so dictate. One-stage procedure, showy operations should be discarded for one of two or even three stages if there is any danger of jeopardizing the patient's life.

Last, but by no means least on this tabulation of *musts,* is surgical conscience. Lord Moynihan's dictum: "For me the operating table is an altar where I celebrate mass," might well be the motto over every operating room. The surgeon's sense of responsibility must be acute. Operations should not be performed before essential laboratory tests are taken, and the surgeon should carefully check results.

Gutierrez cautions the novice in regard to certain features of the operation itself.

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*Ed. 2. Editorial Nocito & Rano, Buenos Aires, 1943.

In abdominal surgery, diagnosis should be certain.

The incision chosen should be the one best suited to the field of action. It should disturb muscles and nerves as little as possible and be neither too long nor so small as to make a simple intervention difficult.

Gentle manœuvers in surgical intervention reduce operative trauma.

Gutierrez disregards the appellations major and minor surgery, for the simple reason that in minor surgery major complications may arise. For this reason he protests against the performance of any operation in the surgeon's office.

Too great surgical speed and overconfidence are to be condemned as causing errors and sacrifice of correct technic. Performing the operation well should be the surgeon's goal; he should be correct, rapid, and do a complete job.

Knowing whether or not to operate and when to operate is vital to the surgeon's success. He should be guided by clinical criteria. If there is any doubt, a consultant should be called in. The good surgeon does not abuse "exploratory laparotomy."

Specialization in some particular branch of surgery is well and good—only, general surgery should be practiced first. Surgery has been greatly benefited by specialization, particularly thoracic and neurologic surgery, in which great strides have been made recently.

Wide general culture is an asset. Languages are the key to publications of scientific discoveries in other countries. Philosophy, logic, psychology, sketching and painting are estimable cultural armamentaria.

In conclusion, Gutierrez weighs the sorrows and joys of the surgeon, recounting the satisfaction he experiences at the saving of a life.

M. T.

Ribbon Gut in Surgery

THE efforts of the surgeon, however skilfully exerted, may encounter a serious hazard through the tearing of tissues by suture material, especially when the tissues are fragile and nonresistant. An interesting survey of the use of ribbon gut in the past ten years at the New York Hospital to overcome this hazard is presented by O. S. Lowsley,* who pioneered in the use of this material on the suggestion of W. P. Didush, the noted surgical artist.

According to Lowsley, ribbon gut not only eliminates the danger of cutting through the tissues, but in addition has the unusual property of permitting fibroblasts to grow between its fibers, so that as the gut is absorbed, the fibroblasts replace it completely. This was demonstrated by microscopic studies. Gut being an animal membrane, hundreds of specimens show that fibroblasts never fail to replace the ribbon gut—which *per se* is an important surgical development.

Ribbon gut has been used at the New York Hospital and elsewhere on a wide variety of organs with most satisfactory results. In kidney wounds, both surgical and traumatic, in which it was first employed, ribbon gut finds its most logical and effective field, owing to the [illegible] of the renal substance. Lows[illegible] nephrostomies perform[illegible] gut and fat method wit[illegible] bleeding, no complications whatever and prompt wound healing. The method also has been used successfully in horseshoe and double kidney, ruptured and tuberculous kidneys. In the ligation of the renal pedicle after nephrectomy, ordinary suture material often cuts through the diseased vessels. In none of Lowsley's cases did the ribbon gut ligature cut through. He warns, however, that caution is necessary to insure that the knot is tied tightly so it will not slip off. He adds that a sizable rosette of tissue distal to the location of the ligature will help to keep the vessels intact.

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*Surg., Gynec. & Obstet. 77:91, July, 1943.

Ribbon gut has been used in total perineal prostatectomy with excellent results and also for the operation devised by Lowsley for the relief of certain types of sexual impotence. In the latter, the dorsal veins of the penis are compressed by a ribbon gut suture and the ischiocavernosus muscles and the bulbocavernosus are plicated. The author states that the success of the operation apparently depends on the use of chromic ribbon gut which does not tear through the delicate muscles, as ordinary twisted catgut does.

Repair of hernias, plication for the relief of urinary and fecal incontinence in the male, various gynecologic conditions, rupture of the liver and spleen and ligation of a bronchus in lobectomy—all have been successfully accomplished by this method.

Undoubtedly the introduction of ribbon gut has been an important step forward in surgery. It is said to have manifold advantages over human fascia lata and preserved ox fascia lata, and possesses a high safety factor of sterilization by heat. In various types of operations coming under the author's personal observation no material thus far encountered has surpassed or even equalled ribbon gut in efficiency and safety.

A. L. Wolbarst

IN MEMORIAM

IRVIN ARTHUR WEICHBRODT, M.D., F.I.C.S.; F.A.C.S.

The officers and members of the International College of Surgeons extend their condolences to the bereaved family of Dr. Irvin Arthur Weichbrodt, whose death occurred on May 4 in Seattle, Washington. He was born in Seward, Nebraska in 1880. He was graduated in medicine from St. Louis University in 1904. He served his internship in Josephine Hospital, pursuing his postgraduate studies at the New York Post Graduate Hospital and on the European continent, particularly in Vienna. Dr. Weichbrodt was a member of the Consulting Staff of King County Hospital, the Visiting Staff of Swedish Hospital and the Chief of Staff of Providence Hospital. He was attached to Seattle College as Lecturer in Gynecology and to the Civil Aeronautics Administration at Washington, D. C. as Medical Examiner. His affiliations included the American Medical Association, American College of Surgeons, Academy of Surgery, Washington State Medical Society and King County Medical Society. Dr. Weichbrodt won wide recognition throughout the Northwest as a diagnostician and surgeon. He was beloved by his patients and admired by his host of friends for his breadth of culture and depth of spiritual insight. The community and the College mourn his loss.

CHAPTER NEWS

BOLIVIAN CHAPTER

IT is with regret that we have learned of the illness of Dr. Enrique St. Loup B., President of the Bolivian Chapter of the International College of Surgeons, under whose leadership the chapter was formed. We hope that he will soon be restored to health.

CHINESE CHAPTER

THE organization work of the Chinese Chapter is progressing. Dr. J. Heng Liu, member of the Board of Trustees of the International College of Surgeons, is keeping chapter members informed of our activities by sending the *Journal* to China in microfilm form.

HONDURAN CHAPTER

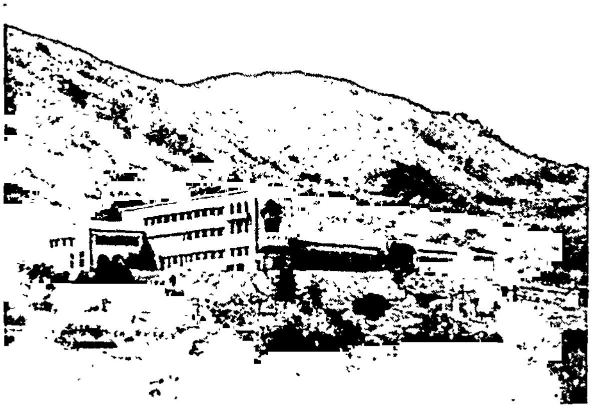
DR. Henry D. Guilbert, Secretary of the Honduran Chapter of the International College of Surgeons, has notified the Central Office that the Honduran Chapter holds monthly meetings, at which time the members present papers followed by discussions.

HAITIAN CHAPTER

DR. C. VALMÉ, Secretary of the Haitian Chapter, announces that it held its annual meeting on Mar. 27-28. The transactions of the meeting will be published in the *Journal* at a later date.

Dr. Louis Roy, F.I.C.S., of the *Faculté de Médecine* of Haiti, has spent several weeks in the United States visiting clinics and sanatoria. He is Professor of Phthisiology at his *alma mater* and a member of the *Service d'Hygiène* of Haiti and Chairman of the Anti-Tuberculosis League, whose program is threefold: (1) To construct sanatoria and dispensaries; (2) to give postgraduate training in this field to physicians and nurses; (3) to disseminate knowledge of prevention of tuberculosis and care of tuberculous patients among the common people.

Dr. Louis Roy



First tuberculosis sanatorium in Haiti

Dr. Roy is responsible for the construction of the first tuberculosis sanatorium in Haiti, erected from funds publicly subscribed to the Anti-Tuberculosis League. The importance of the task of wiping out this disease in Haiti, undertaken by Dr. Roy, may be realized when we remember that in Haiti, where a large percentage of the population is poor, tuberculosis is the leading cause of death.

MEXICAN CHAPTER

MEXICAN UNIVERSITY MISSION FETED IN CUBA

At the invitation of the Faculty of Medicine of the University of Havana, Drs. Manuel A. Manzanilla, F.I.C.S. (Hon.), International Vice-President of the International College of Surgeons, and Francisco Fonseca García, F.I.C.S. (Hon.), National Secretary of the Mexican Chapter of the College, of the Faculty of Medicine of the National University of Mexico, were cordially entertained. The object of the mission was the furthering of cultural rapprochement and university exchange between the National University of Mexico and the University of Havana.

The Mexican delegation was received by the University of Havana dignitaries in a special session where it presented a message from the sister National University of Mexico. The meeting was presided over by University Rector, Dr. Rodolfo Méndez Peñate, Vice-Rector, Dr. Roberto Agramonte, and the other deans of the university faculty. The Faculty of Medicine also met in special session, presided over by the Dean, Dr. Angel Vieta Barahona, to greet the Mexican colleagues, which initiated and presented various scientific lectures.

Dr. Esteban Paulín, F.I.C.S., Territorial Regent of the Mexican Chapter of the International College of Surgeons, who accompanied the Mexican delegation to Havana to fulfil a cultural mission from the government of the State of Querétaro, representative of the Civil College, at present incorporated in the National University of Mexico, participated in all university activities.

The Mexican university delegates presented to the University of Havana in special session a fraternal message from the National University of Mexico, directed by the Rector, Dr. Rudulfo Brito Foucher, as well as personal messages from the Mexican university deans to their Cuban colleagues, the first being that of Dr. Gustavo Argil, F.I.C.S. (H.C.), Director of the Faculty of Medicine of the University of Mexico. The Rector, Méndez Peñate, delivered the address of welcome in the name of the Vice-Rector and the various deans. He spoke glowingly of the importance of the mission.

At the Faculty of Medicine, Dr. Ernesto R. de Aragón, one of the distinguished faculty members, introduced his Mexican colleagues as follows:

> “The Faculty opens its doors and regales itself in festal attire to receive with open arms

Delegation of the National Mexican University amid reception committee of Cuban Surgeons

the messengers of the 400-year old University of Mexico, who on a noble mission of fellowship bring us invaluable scientific knowledge and a prodigious wealth of experience.

"Universities cannot limit their activities to purely scientific functions, which through their individual disciplines lead to the so-called liberal arts careers, nor, as the experience of the University of Havana shows, dedicate itself fully to research work with the aim of high scientific specialization. The universities today represent an advance in ideological movements; they are and ought to be an orienting factor, which, while pointing out cultural paths, fix and determine the trajectory of peoples.

"It is for this reason that the visit of the Mexican professors has a major importance and a more transcendental purpose than that of a simple visit of courtesy or one of cultural approach, and if, with this same ideology, the visit which in 1941 we made to the sister university with a worthy representation of our alma mater had had no other result than the motivation for this outstanding representation of the Mexican University, we should feel amply repaid for our effort.

"Rapprochement, understanding and acquaintanceship among men of science, brings peoples together more rapidly and efficiently than the most painstaking and subtle functions of professional diplomats. But when we find scientific endeavor entwined with character, personal attraction, and when the mission to be fulfilled is felt so sincerely, the result is so much the greater. Such is, professors, the position of this brilliant embassy which our sister university, the National University of Mexico, sends us."

Dr. de Aragón then recited in glowing terms biographical data on Profs. Manzanilla and Fonseca García, and referred also to Dr. Paulín, "who although at this moment neither a professor nor official representative of the National University of Mexico, comes to us as an outstanding leader in his profession. We welcome them," he concluded, "not only for their own intrinsic merits, but because they are *Mexican professors*."

Later the Mexican delegates were received by the Academy of Medical, Physical and Natural Sciences of Havana, a special session presided over [illegible] President, Prof. José [illegible] tiony; by the Society [illegible] special session [illegible]

President, Prof. Alberto Inclán, F.I.C.S. (Hon.); by the National Association of University Professors, in a special session presided over by the President, Prof. Angel Pérez André; etc. Finally the Faculty of Medicine tendered a reception of welcome at the National Hotel, and the University of Havana and Medical Association of Cuba, under the presidency of Prof. Alberto Banet, F.I.C.S., gave a farewell banquet in their honor at the Union Club.

DR. BARAHONA OF THE UNIVERSITY OF CUBA VISITS MEXICO

In connection with the university exchange between the National University of Mexico and the University of Havana, Dr. Angel Vieta Barahona, Dean of the Faculty of Medicine of the University of Havana visited the National University of Mexico. This distinguished colleague was received by the Faculty of Medicine of the National University of Mexico, after a reception by the Rector. Special sessions were called in his honor by the Mexican Academy of Surgery and the National Academy of Medicine. Dr. Barahona visited numerous scientific institutions and Mexican hospitals.

PERUVIAN CHAPTER

The *Journal* announces with pleasure that Prof. Francisco Graña, First Vice-President of the International College of Surgeons, has notified the central office of the College that through the presentations of the Minister of Health of Peru the Peruvian President has approved a grant of $1000 to be used toward publication of the *Proceedings* of the Fourth International Assembly of the International College of Surgeons, held in New York, June 14-16, 1944.

Dr. Graña writes: "I am very pleased to have been able to obtain this contribution for College work, and at the same time I am exerting every possible effort toward the progress of the Peruvian Chapter.

UNITED STATES CHAPTER

Marked progress is being noted in the various Committee activities connected with the forthcoming Ninth Annual Assembly of the United States Chapter of the International College of Surgeons, which will be held in Philadelphia, Oct. 3-5, 1944, at the Benjamin Franklin Hotel, under the general chairmanship of Dr. J. Rudolph Jaeger.

The chairman of the Program Committee, Dr. William Bates, reports that every effort is being made to make this assembly an especially educational and inspirational one.

It is urged that those desiring to have exhibits at the assembly communicate immediately with Dr. John Moore, Chairman of the Exhibit Committee, in order to assure that space will be reserved for them.

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BOOK REVIEWS

White Blood Cells Differential Tables. T. R. Waugh. 126 pp. D. Appleton-Century Co., New York, 1943.

UNDER certain circumstances a simple blood count is not sufficient for the attending physician. In the ordinary course of events the differential count is given in percentages which may be misleading, especially in diseases in which relative increases or decreases occur in the minor members of the leukocytic series. Since our laboratory diagnostic services are continually striving for greater accuracy, it devolves upon the technician to interpolate the percentages into actual numbers, which is often a time-consuming and an error-introducing procedure. This little book by Dr. Waugh is simply a group of tables which allows this interpolation to be done quickly and accurately. It serves this purpose very admirably and is to be recommended as part of the library of every clinical laboratory.

I. Neiman

Surgery of Modern Warfare. In six parts. Edited by Hamilton Bailey. Part III, pp. 329-506, 312 illus.; Part IV, pp. 507-716, 244 illus. E. S. Livingstone, Edinburgh, 1944. *(For review of Parts I and II, see the Mar.-Apr., 1944, issue.)*

PART III

PART III of this excellent work edited by Hamilton Bailey contains sections on Wounds of Blood Vessels, Methods of Immobilizing the Limbs, and Amputations. Blood-vessel wounds are depicted outstandingly by the use of three-color illustrations. A description of tourniquets and their application is accompanied by the appropriate illustration. It is pointed out that in surgery of vascular injuries of war, standard operative exposures of the classroom are dangerous and inadequate because missiles do not inflict their damage conveniently at "seats of election." In repairing arterial wounds, blood flow should be maintained where practicable. The use of heparin in vascular surgery [illegible] cussed. The plaster [illegible] use of Thomas's spl[illegible] Cramer wire are [illegible] amputations are warned against.

PART IV

Part IV, which treats of Wounds of Bones and Joints, Wounds of the Head and Foot, Wounds of Tendons and Peripheral Nerve Injuries, Wounds and Injuries of the Spine and Wounds of the Head and Neck, contains a description of sequestrectomy and the methods of obliterating bone cavities. Excellent descriptions of surgical anatomy of joints of the upper extremities, the ankle and tarsal joints precede the treatment and management of wounds of these parts. A special chapter is devoted to infected wounds of the hand New principles of tendon suture are described. Operative treatment of war injuries of the spine and cord is introduced by the pathology and clinical picture. One chapter is given over to management of the bladder in spinal injuries. An interesting description of the operative technic in wounds of the great vessels of the neck. The sub-editorship for medicine is admirably conducted by Mr. C. Allen Birch. The seventy-seven contributors to the work have added a brilliant array of practical teachings. They represent the various specialties. The profusion of illustrations, the convenient format and exceptionally fine printing, paper and binding contribute to round out a work which is welcome, well-presented and replete with information. It is warmly recommended. A brief but practical bibliography is found at the end of each chapter.

M. T.

Textbook of General Surgery. Warren H. Cole, M.D., F.A.C.S., Prof. and Head of the Dept. of Surgery, University of Illinois College of Medicine and Robert Elman, M.D., Associate Prof. of Clinical Surgery, Washington University School of Medicine. Ed. 4. 1118 pp., 559 figs. D. Appleton-Century Co., New York, 1944.

THE Fourth Edition of this comprehensive textbook on general surgery has been brought up to date by the inclusion of a chapter on War and Catastrophic Surgery. Significant surgical advances are noted and additions have been made throughout the text to augment data previously presented on fluid and electrolyte balance, amino acid therapy, hypoproteinemia, transfusions, chemotherapy and appendicitis. The chapter on war wounds contains a brief discussion of preoperative factors, anesthesia, operative treatment, convalescent care, thermal burns, simple fractures, compound fractures, amputations, as well as abdominal, cranial, craniocerebral, spinal cord, peripheral nerve and maxillo-facial injuries. Crush syndrome, blast injuries, war gases and war lesions of the feet are adequately set forth. One might wish, however, that this chapter had contained at least a few illustrations.

All in all, this edition, as its predecessors, is brimful of information and up-to-date material. It is unreservedly recommended to students and surgeons alike.

M. T.

Vascular Responses in the Extremities of Man in Health and Disease. David I. Abramson, M.D., F.A.C.P. 412 pp., 59 figs. $5. University of Chicago Press, Chicago, 1944.

THIS comprehensive survey of peripheral vascular disease is introduced by an excellent section on *the general* anatomy and physiology of the peripheral blood vessels. Technics for study of peripheral circulation, responses of peripheral blood vessels to physiologic and pharmacologic agents, blood flow in abnormal states and in systemic diseases, diseases of arteries and arterioles and the veins, and evaluation of methods used in treating peripheral vascular disease are the subjects treated in this pioneer work. Experiments were performed on human, rather than animal, subjects. Therefore, conclusions reached are especially valuable. Extensive bibliographies make this a valuable reference work, which should be brought to the attention of physiologists, internists, surgeons, dermatologists, physiotherapists and pharmacologists alike.

M. T.

Arthroplastia del Codo. Oscar Busto. 134 pp., 39 figs. Sebastian de Amorrortu e Hijos, Buenos Aires, 1943.

THIS compact, instructive volume on *Arthroplasty of the Elbow* is thorough and readable. Three chapters on the nature, etiopathology and diagnosis of ankylosis introduce the theme. After carefully defining and giving the history of arthroplasty, the author has stated his belief that animal experiments have been of little use in this field, since conditions analogous to those of humans cannot be created. The mechanism of the formation of nearthrosis is described. Indications and contraindications for the operation are given at length, functional position and the condition of the patient playing an important rôle. Preoperative care and anesthesia are discussed, general anesthesia being recommended except in cases of tuberculous ankylosis, where local anesthesia is administered by the technic of Finochietto. Routes of access, operative technics and postoperative care are treated in detail. A well-illustrated chapter on clinical observations concludes the text, which is accompanied by a copious bibliography, conveniently divided into Argentinian and foreign references. A large format and clear type make the book easy to read. It is well worth the attention of the surgeon who reads Spanish.

M. T.

Pathology and Therapy of Rheumatic Fever. Leopold Lichtwitz, M.D., lately Chief of the Medical Division of the Montefiore Hospital, and Clinical Professor of Medicine, Columbia University. 211 pp., 69 figs. $4.75. Grune & Stratton, New York, 1944.

IN this interesting work by the late Prof. Leopold Lichtwitz, the multiple clinical features of rheumatic fever are presented as a manifestation of allergy. The similarity of rheumatic fever to serum sickness is stressed. The subject matter is well organized, the illustrations and microphotographs interesting, and bibliography adequate. The chapter on treatment discusses the various therapeutic agents in use.

Herbert Sachs

Minor Surgery. Frederick Christopher, Associate Professor of Surgery at Northwestern University Medical School. Ed. 5. 1006 pp., 575 illus. $10. W. B. Saunders Co., Philadelphia, 1944.

THE fact that the book appears in its fifth edition bespeaks its popularity and warm reception by the profession.

The opening aphorism of Maisonnet quoted by the author is pertinent: *"C'est par l'étude de la petite chirurgie que le chirurgien commence son apprentissage."* Of course, one cannot speak of "small surgery" or "minor surgery" without qualifying the statement. Surgery is neither small nor minor. Small errors beget big consequences. This reviewer believes that, strictly speaking, there is no such thing as minor surgery. It has been justly remarked by a visiting English surgeon that there are "minor surgeons," but never minor surgery. Yet the simpler forms of surgery are stepping stones to greater achievements and are indispensable to the beginner. The author is to be commended on the statement that all minor surgery is potentially major surgery, a distinction between the two often being impossible. With this premise before us, would it not be advantageous to change the term "minor surgery" to some such designation as "the simpler forms of surgery"? For undoubtedly the former often lulls the inexperienced into a perilous sense of false security, and on occasion he finds himself rudely awakened by heartaches and disappointments to the patient. The man in general practice, who of necessity is frequently called upon to take care of a variety of surgical conditions, will find in this volume a great deal of information. In fact, this reviewer recommends this opus to every general practitioner because of its outstanding practical value and because he believes that no man has a right to practice medicine who is incompetent when confronted with problems requiring prompt surgical attention. Of course, one could pick out throughout the many pages of the book lesser points here and there wherein the writer differs, but such should never detract from the main value of a sincere effort. Such entities as the removal of foreign bodies, treatment of wounds and burns, injuries, infections, fractures and dislocations are all matters which concern the general practitioner, and in the chapters dealing with these he will find the greatest usefulness. Chapter 25 on the Surgical Intern is a happy inclusion in the work. The hospital resident will often refer with profit to this chapter and to the one on pre- and postoperative care. The work is well and profusely illustrated. The bibliography interspersed throughout the text is a distinct advantage, and the index augments the value of the work.

Max Thorek

Sulfonamide Therapy in Medical Practice. Frederick G. Smith, M.D., Editor of *Philadelphia Medicine* and the *Medical World.* 368 pp. Numerous tables and charts. Philadelphia, F. A. Davis Co., 1944.

SULFA therapy is the most important advance of chemotherapy in the last decade. An enormous literature deals with the application of these drugs, their mode of action, their primary and secondary effects and their limitations. Improved sulfa preparations have been brought out successfully in recent years, requiring studies of their advantages and their toxicity. Every doctor should become familiar with the use of this therapy, supplementing his personal experience with the knowledge of the literature. Thus, the author of this monograph is satisfying an urgent need for a thorough instruction in the practical results of sulfa therapy. Furthermore, the author analyzes and criticizes the current literature in a careful and subtle manner, enabling us to recognize both the indications and dangers in the use of sulfa drugs. Part I of the volume gives general information concerning the sulfonamides, *i.e.*, their pharmacology, dosage, method of application, toxic reactions, and necessity for blood tests and urinalyses. Part II deals with sulfonamide therapy in particular branches of medicine and in special diseases. An appendix contains a report on penicillin, the drug which in the future may supplant sulfa therapy. The author is to be congratulated upon his outstanding, excellent work, which will be of especial value to the medical profession.

Otto Porges

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Blast*

HAMILTON BAILEY, F.R.C.S. (Eng.), F.I.C.S. (Hon.)
LONDON, ENGLAND

BLAST is not a new phenomenon; previously it was known to comparatively few, now it is on the lips and in the minds of all who treat the victims of total war. The principal reason for this is as follows:

In the 1914-18 war the terrific compression or rarefaction wave set up by the detonation of high explosives usually spent itself in open country. In the bombing of towns such waves are created in streets and other confined spaces, and cause effects varying from general mutilation to partial or even entire loss of clothing. Most of the cases of blast have come from bombed houses. If the victim is not killed outright the organs most frequently affected are the lungs.

Blast should be divided into two great varieties: *air-transmitted blast* and *water-transmitted blast.* Before entering into detail upon the baneful effects of these physical forces upon men and animals, it is incumbent upon us to have some elementary knowledge of the explosive waves themselves.

Air-transmitted blast waves have three components:

1. *Mass movement of air or gas* is the cause of the shattering effect in the immediate vicinity of the explosion (Fig. 1).

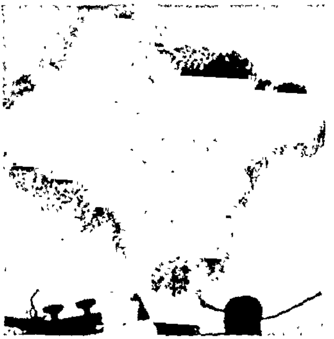

Fig. 1. Photograph (exposure 1/1,000,000 sec.) of an explosion of a mixture of pentane and air. (Professor G. I. Finch)

2. *The positive pressure wave* travels at 5000 feet per second, the same speed as that of sound. The critical distance is about 20 feet away from the center of the explosion. The fall in pressure is very rapid (Fig. 2). Thirty feet away from the explosion the pressure is only 15 lbs. per square inch.

3. *The negative suction wave.*

Water-transmitted blast waves also have three components:

1. *Mass movement of water* is, as one would expect, infinitely less than that of air. What one would not expect, however, is that even when close to a terrific explosion, shattering effects do not occur.

2. *The positive pressure wave* travels at first at the same rate as it does in air, viz. 5000 feet per second. However, the rate of fall in pressure is much slower, consequently pressure effects will be experienced at a much greater distance from the explosion. The critical distance is about 80 feet fr

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*Presented at the Fourth International Assembly of the International College of Surgeons, held in New York, June, 1943.

3. *The reflection wave.* When the positive pressure wave from a depth reaches the surface, it is not transmitted to the air. It is reflected just as a beam of light is reflected from a flat mirror.

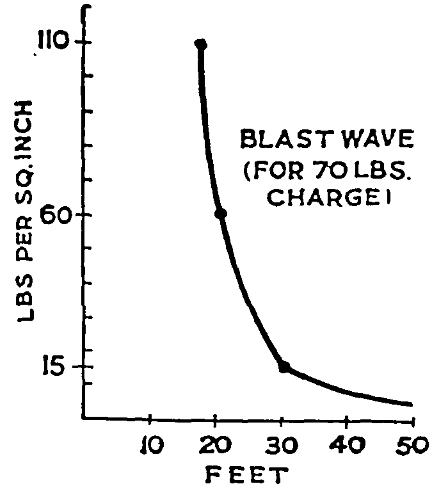

Fig. 2. The curve of blast air pressure. (A. R. P. Handbook, No. 5)

ANIMAL EXPERIMENTS

Zuckerman carried out experiments in which he exposed various animals to blast. The experiments were so arranged that the animals did not sustain external injury, and there was no question of penetrating wounds. The outstanding pathologic lesion was bilateral traumatic hemorrhage in the lungs (Fig. 3), and when blast had been sufficient to kill the animal, blood was found in the bronchial tree. Zuckerman concluded that blast bruises the lungs by its impact upon the body wall as opposed to its effects upon the air in the bronchial tree.

Cameron, Short and Wakeley carried out a series of experiments with goats and other animals, subjecting them to water-transmitted blast. The outstanding pathologic findings, as in the case of air-transmitted blast were found in the lungs. The abdominal viscera suffered also in a high proportion of cases. One of the most frequent lesions to be found was subperitoneal and submucous hemorrhages in the walls of the hollow viscera. Intra-abdominal organs were occasionally found to be ruptured.

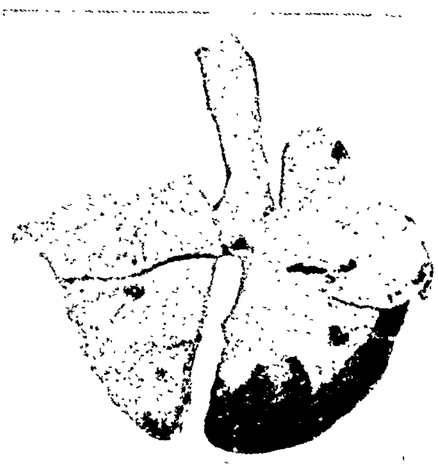

Fig. 3. Severe hemorrhage in right lung of a rabbit which had been exposed to blast from the explosion of oxygen and hydrogen in a balloon. The animal was placed so close to the explosion that the right side shielded the other. (S. Zuckerman)

NECROPSY FINDINGS

Death may result from the effects of blast on the lungs, heart, abdominal viscera, medulla or from air embolism or from a combination of these factors.

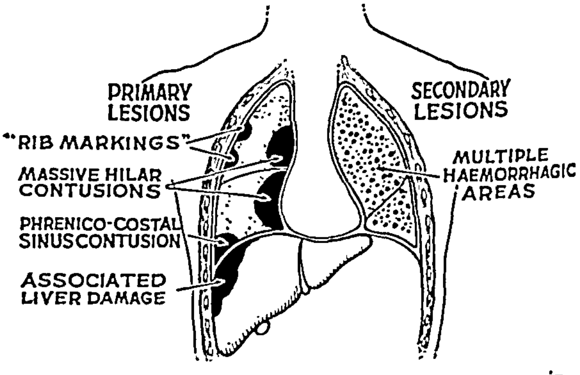

Fig. 4. The principal lesions found at necropsy in blast injuries of the lungs. (After Shaw Dunn)

Lungs. Everywhere on the pleural surfaces there are many small, fresh hemorrhages. The trachea and bronchi show numerous petechial hemorrhages, and there is some blood on the surface of the mucous membrane. The cut surface of the lung is most striking; there are bright red points of hemorrhage to be seen everywhere. Professor Shaw Dunn states that these hemorrhagic spots, which vary in size from a pin's head to a finger nail, are due to inhaled blood and are therefore secondary phenomena. The primary lesions are shown in Fig. 4. The damage to the lungs is more severe in younger subjects because of their comparatively elastic thoracic walls.

Histology. The characteristic findings are: (a) an extensive outpouring of erythrocytes, sometimes accompanied by fibrin formation and a deposit of blood pigment; (b) rupture of elastic tissue and capillaries; (c) evidences of secondary infection with streptococci (broncho-pneumonia).

Abdomen. Multiple hemorrhages into the gut wall, both subperitoneal and submucous, are often present. Rupture of one or more of the viscera is occasionally found.

CLINICAL FEATURES

EFFECT OF BLAST UPON THE LUNGS

It is often difficult to assess the relative importance of blast on the lungs since blast injuries are often multiple and may be combined with the effects of nitrous fumes and with splinter injuries.

Shock. There is a rapid development of severe shock.

Dyspnea is a constant feature, particularly extreme expiratory dyspnea.

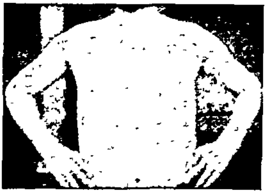

Fig. 5. Patient after blast injury. Note fullness of lower part of the chest. (R. S. Allison)

Cyanosis. Usually the patient is pallid but somewhat cyanosed. Occasionally cyanosis is striking, and in cases where recovery has followed it tends to disappear after twenty-four hours. The picture may be confused by the administration of sulphapyridine.

Pain in the chest is not unusual.

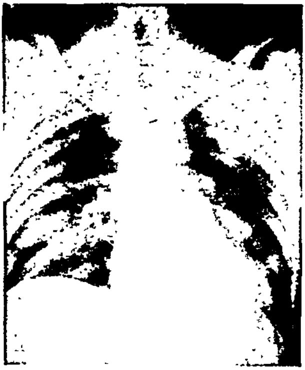

Fig 6. About thirty hours after injury. Heavy mottling of left lung field; less on right. (O'Reilly and Gloyne)

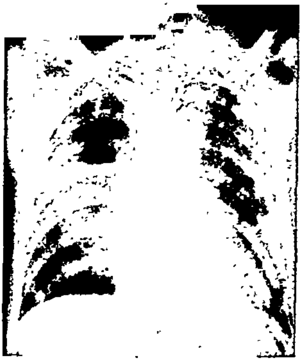

Fig. 7. Radiograph t [illegible] ours
injury. Heavy mottli [illegible] g fi
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Cough is at first unproductive, later sputum, often blood-stained, is brought up. Early hemoptysis is sometimes a leading sign which simplifies the diagnosis.

Physical signs. That blast injury to the lungs is present should be suspected when there are diminished movements of the diaphragm, fulness of the chest giving it an emphysematous appearance, and impairment of resonance at one or both bases. It is usual to find the lower chest ballooned, especially in the region of the lower costal margin (Fig. 5).

Signs of patchy consolidation, accompanied by pyrexia, often develop within twelve to twenty-four hours.

The effects of blast are much more disastrous in patients with lungs already diseased.

Radiologic findings. The most typical sign is heavy mottling scattered over large areas of the lung fields (Figs. 6 and 7). The most common finding, frequently bilateral, is a fuzzy linear zone of increased density situated just above the diaphragm (Gates).

C. C. and M. T. Macklin have observed that in a few cases air can be demonstrated in the mediastinum radiologically. This extravasation of air must be due to coughing when a rupture of an alveolus is present. It might be relieved by needling.

THE EFFECTS OF BLAST ON THE ABDOMEN

Too little attention has been paid to the effects of blast upon the abdomen as opposed to the thorax. It is probable that in most cases damage to the intestines similar to that of the lungs, but on a minor scale, occurs; malena has been noticed in many of these cases, especially those of water-transmitted blast. It should be noted particularly that intra-abdominal injury—with intestinal perforation of the small intestine as well as the large intestine—has occurred in cases of water-transmitted blast sufficiently often to warrant its very serious consideration.

Pain in the abdomen is often an important feature, but difficulties surrounding the diagnosis are considerable. It is true that laparotomy has been performed with negative findings on several occasions. It is also true that numbers of patients with "blast abdomen" have recovered without surgical intervention. Nevertheless, a subparietal rupture has been revealed by timely operation sufficiently often to prompt the surgeon when in doubt to "look and see"—under local anesthesia. There is one practical point to which attention is drawn. In all cases of blast, if facilities exist, a radiograph will be taken of the thorax. At the same time the abdomen should be x-rayed. Gas beneath the diaphragm is a clear indication of the necessity for laparotomy. On the other hand the absence of gas in the peritoneum should not in any way bias the surgeon's judgment.

THE EFFECT OF BLAST UPON THE CENTRAL NERVOUS SYSTEM AND ORGANS OF SPECIAL SENSE

It is not to be wondered at that the central nervous system suffers severely, and lesions, ranging from mental aberration to weakness of the limbs or temporary paresis, are commonplace. After being subjected to blast, even animals showed signs of their ordeal. Cows ceased to eat and had to be slaughtered; a dray horse suffered from mild paralysis. Rabbits hopped aimlessly, and could be picked up by hand (Buxton).

Ruptured ear-drums are almost the rule. Some of the patients develop purulent otorrhea. Hemorrhage into the anterior chamber is a common ocular lesion.

PREVENTATIVE MEASURES AND FIRST AID

On land. If adequate cover is not available, the effects of blast can be minimized by lying down flat upon the ground. In cases of asphyxia due to blast, Schäfer's method of artificial respiration is contraindicated.

In water. When the trunk is protected by a life jacket made of kapok or other buoyant material, there is ample evidence that some protection is afforded from the effects of water-transmitted blast. In the absence of such protection, swimming on the back renders the subject less liable to internal injuries.

MANAGEMENT AND TREATMENT

The treatment of blast belongs to the resuscitation department, and unless the surgeon is absolutely compelled, the patient should not be taken to the operating theater until the condition has been remedied. There is no need to be in trepidation in administering an adequate dose of morphia to patients suffering from blast injury to the lungs. It is obvious that if a patient is seriously shocked, priority will be given to the treatment of the shock. In this connection a very important point has been emphasized by Williams. The clinical and pathologic pictures of blast lesions of the lungs closely resemble those of acute pulmonary edema. It behooves us, therefore, to avoid overloading the circulation with extra fluid, a real danger when we are so anxious to combat shock. One of the chief principles of treatment of blast injury is to immobolize the patient and disturb him as little as possible for a period of several days.

Oxygen, administered preferably by a B.L.B. mask, should be the rule. If the mask is obnoxious to the patient, it should not be persisted with; a nasal catheter, preferably retained with Tudor Edwards' spectacle frame, should be substituted. Oxygen therapy produces striking and lasting results in comparatively mild cases.

In cyanotic patients with much dyspnea venesection has been recommended. This measure should never be performed in these cases without the approbation of a consulting physician. Sulphapyridine has been given prophylactically, in doses of two tablets four-hourly, but this appeared to have little effect in preventing the development of pneumonia.

It is essential that the anesthetist should bear in mind the possibility of blast before he anesthetizes the patient for an operation elsewhere in the body. If a patient suffering from blast must be operated on, local or intravenous anesthesia should be employed.

In patients suffering from the effects of blast upon the central nervous system the first consideration in treatment is absolute rest. In addition, magnesium sulphate per rectum has proved of value, and in a few cases 40 cc. of a 15 per cent solution of hypertonic saline, given intravenously, has been praised by some observers.

SUMMARY

The various aspects of blast (air-transmitted blast and water-transmitted blast) are fully discussed. The effect of blast on the lungs, abdomen and central nervous system are described. Animal experimentation has revealed that the outstanding pathologic lesion is bilateral traumatic lung hemorrhage. Preventive measures and first aid treatment are described; oxygen therapy is recommended in treatment of blast.

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SUMARIO

Los varios aspectos de explosiones transmitidas por aire o por agua son ampliamente discutidas. El efecto de explosiones sobre los pulmones, el abdomen y el sistema nervioso central son descritos.

Experimentos en animales revelan que la lesión patalógica más prominente es hemorragia pulmonar bilateral. Medidas profilácticas y tratamiento de primeros auxilios son enumerados. El uso terapéutico del oxigeno es recomendado en el tratamiento de explosiones.

RÉSUMÉ

Les différents aspects des explosions, qu'elles soient transmises par l'air ou par l'eau, sont discutés à fond. L'auteur décrit les lèsions pulmonaires abdominales et nerveuses (centrales et périphériques) provoquées par les explosions. L'expérimentation sur les animaux nous ont révélé que la lésion pathologique prédominante est l'hémorrhagie bilatérale traumatique pulmonaire. Les mesures préventives et les soins préliminaires sont décrits. L'emploi de l'oxygène est recommandé dans les cas de sinistrés par gas explosifs.

Выводы

Эффект взрыва в воздухе и в воде всесторонне обсужден. Также описан эффект взрыва на легкие, брющную полость и централную нервную систему.

Опыты с животными показывают что главным патологическим повреждением яввляется обосторонное травматическое легочное кровоизлияние. Описаны предхранительные меры и первая помощь.

В лечении кислород очень рекомендуется.

NEWS ITEMS

Among the activities planned for the Ninth Annual Assembly are a tour of hospitals and attendance at Clinics under the direction of **Dr. Leonard D. Frescoln** of Philadelphia, and participation by more than fifty prominent surgeons and others engaged in the work of rehabilitation and occupational therapy who will present twenty-minute papers during the morning and afternoon sessions.

Among some of the special features to be shown are a new exhibit on War Activities by the **American Red Cross** and the original paintings "The Seven Ages of the Physician" through the courtesy of the **Ciba Pharmaceutical Products, Inc.** and "Pioneers of Medicine" through the courtesy of **Wyeth, Incorporated.**

Dr. Morris Fishbein will be the principal speaker at the Convocation exercises of the United States Chapter of the International College of Surgeons to be held on October 4 when one of the largest classes in the history of the College will be accepted into Fellowship and Membership. Dr. Rudolph Jaeger, formerly of Denver, Colorado and now in charge of Neurosurgery at Jefferson Hospital, Philadelphia, will be inducted into office as the new president of the United States Chapter.

The new president of the Cuban Society of Otolaryngology for 1944-1945 is **Dr. Pedro Hernández Gonzalo.**

Dr. Alberto Inclán, F.I.C.S., has been elected president of the Cuban Society of Orthopedics and Traumatology for 1944-45.

(Continued on page 274)

Administrative Procedures in the Handling of the Discharge of Disabled Service Men*

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THE administrative procedures herein described have as their objective the reintegration into civil life of the members of the Armed Forces upon completion of their service to the Nation. The objective is paramount. The procedures and forms are a mere tool for the accomplishment of this objective, and in all cases the tools have been subordinated to the human element involved.

Every effort is made to handle each man as an individual and to make him feel that he is considered and treated as an independent person, having his own individual problems, and that he is *not* merely one of a mass being subjected to a rigid routine, to whose requirements the problems of the individual are subordinated.

1. There are a number of administrative agencies participating in the discharge and rehabilitation and reëmployment of the disabled or handicapped service men. Each of these agencies has a specific function. This paper is presented from the viewpoint of the Reëmployment Division of the Selective Service System of the War Manpower Commission.

2. The Reëmployment Division was created under Section 8 of the Selective Training and Service Act of 1940, and amendments, and is specifically charged by law with providing jobs either through reinstatement in old positions or finding new jobs for all ex-service men upon the completion of satisfactory service. It is authorized to utilize the facilities of all other government divisions, or to create such facilities as may be needed to carry out the obligation assumed by the government to the service man. For the creation of specific services, it would, of course, require specific appropriations from Congress, in addition to the general obligation imposed upon it. This division operates primarily through planning, liaison and coördination, and it seeks to utilize to the full and in addition build up and strengthen those government agencies already created to perform specific services for the veteran.

Within the War Manpower Commission it works in very close coöperation with the U. S. Employment Service and the Veterans' Placement Service affiliated with it, as the primary means of placing the veterans in jobs, and it supplements this with volunteer committees to cover those phases of employment which experience has proved cannot be covered by any employment service, no matter how well and efficiently organized, nor how heavily financed. But the Employment Service is still the primary means of placement, and all placements are coördinated with them.

3. The various agencies concerned in administrative procedures in the discharge and rehabilitation of the veteran are as follows: (For the sake of simplicity we will confine the description of the military end to the Army, as the Navy, Marine C[illegible] Co[illegible] Guard

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*Presented at the Fourth International Assembly of the International College of Surgeons, held in New York, June, 1943.

set-up follows this functionally, but the different nomenclature of similar departments would merely tend to confuse the picture):

(a) *The War Department* (Similarly, Navy, Coast Guard and Marine Corps), in which the following subdivisions participate in the administration of demobilization:

(i) The G-1, or Personnel Section, which is the manpower procurement and assignment section of the Army, and which handles matters of policy in regard to assignment and discharge of personnel.

(ii) The Surgeon General's Office, which passes upon and compiles the records of physical condition and disability.

(iii) The Adjutant General's Office, which is the office of record, through which pass the records of every man and officer in the service; which office also prepares all orders carrying into effect policies approved by the G-1 section of the Staff.

(iv) The Insurance Section of the Adjutant General's Office, through which is handled all of the service man's war risk insurance, premium deductions, etc.*

(v) The Finance Section, dealing with final pay.

(vi) Quartermaster Corps, dealing with clothing, etc.

(vii) Ordnance Department, dealing with weapons, cartridge belts, etc.

(b) *The Veterans' Administration*, which receives as ultimate custodian the records of the medical examination of the service man on entrance to and discharge from the service, and who handle all claims for pensions for partial or total disabilities, provide permanent hospitalization for those requiring it, and prosthetic appliances for those needing them. (The latter are generally supplied to the men while in the military hospitals upon requisition from the latter.)

The Veterans' Administration by recent legislation has also been charged with the vocational rehabilitation of service men, for which purpose it is authorized to utilize on a reimbursement basis State and private agencies.

(c) *The Veterans' Placement Service.*

(i) A section of the U. S. Employment Service, set up to deal especially with the employment of veterans.

(ii) The U. S. Employment Service, with which the Veterans' Placement Service operates. This is a National employment service, operated by the United States Government for the benefit of all civilians and veterans alike in obtaining employment. It maintains 1500 affiliated offices and some 3000 visiting offices, with a total personnel of about 25,000, and it, in conjunction with the Veterans' Placement Service, will constitute the permanent job-finding agency of the country after *all* the machinery set up especially to assist during the war effort and the readjustment to peace has been closed up.

(d) *The Vocational Rehabilitation Services* maintained by the various States, under the jurisdiction of their Department of Education and financed through funds of the Federal Government. provided through the Federal Security Administration. Until the passage of the recent act, this was the only agency we had available for vocational rehabilitation.*

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*Note: We are concerned only with items (i) [illegible] (iv), as the remaining [illegible] are mere [illegible] accounts, and do [illegible] any further as in which we are interested.

(e) *American Red Cross*—whose function is the official investigating agency of the Armed Services in questions involving the family of the service man, as to hardship cases, etc., and which also provides financial assistance for those cases not provided for by law.

(f) *The Reëmployment Division* of the Selective Service System of the War Manpower Commission is charged with the general responsibility for seeing that the service man is properly reintegrated into civil life.

4. The administrative principle governing the operations of the Reëmployment Division is to utilize to the full the services of all the agencies listed in the preceding paragraph, and to support and assist them in every way. The Reëmployment Division creates only such additional placement and administrative machinery as is found necessary to supplement the work of the established agencies, and all of such work conducted by the Reëmployment Division is done by volunteers, in close coöperation with the established government agencies. Administratively the National Headquarters of the Reëmployment Division confines itself, as closely as possible, to planning, coördination, liaison and inspection, and reduces operations to the absolute minimum possible.

5. From the human equation standpoint, each man is handled as an individual, and every effort is made to make him feel that his interests are handled by people who are concerned with him personally, and not with a mere serial number or case. For this purpose there been appointed Reëmployment Co teemen affiliated with each local of the United States. Their pri function is to act as employment ad and counsellor to the returned se man, and as his liaison agent and fo up man with all the established go ment agencies whose service ma needed by the veteran. The Reëm ment Committeeman operates in closest coöperation with the local Employment Office, and particu with the Veterans' Placement R sentative. He receives the notice o man's discharge and other records delivers them to the proper agenc handling the interests of the service

6. There is in process of organiz a series of Clearing House Commi of which the National Committee already been formed. The State mittees will probably be formed d June, and the Town and Village mittees in July or August. These C ing House Committees consist of r sentatives of essentially *all* orga civic bodies in the community. task is to apportion to the proper body the handling of any particular arising in connection with the ve and his interests. They are also exp to organize community responsibilit the reintegration into civil life o service man, and to apportion the equitably among all parts of the munity, so that each member shall his or her share of the load and not it concentrated on a minority of erous-spirited people.

7. The administrative procedure lowed in the discharge of a man—an will follow primarily the hospital charge as being of direct interest to t attending this meeting—starts wit policy set up by the General Staff o Army as to reclaiming handicapped for limited service within the A

Note: Educational facilities are being provided through the Education Council, and Vocational *Training*, as distinguished from Vocational *Rehabilitation*, is also provided through State Services, but these facilities are not involved in the administrative procedures of discharge.

which policy affords the guide to the medical authorities and the discharging authorities.

We are concerned primarily with the discharges from hospitals, of which there are approximately 309, both Army and Navy, in the Continental United States. These are the hospitals having over 250 beds, 90 of which are general hospitals. Minor details vary in hospitals according to their physical facilities, as for example, in one of our major hospitals a convalescent department in separate buildings has been *established, and all* ambulatory cases are immediately evacuated from the main hospital as soon as they reach this state and transferred to the convalescent section, in which case all of the procedures outlined are conducted in the convalescent section. In other hospitals there is no segregation, and the work has to be done in the gular wards.

8. As soon as the medical authorities have *tentatively decided that a man will* be discharged from the service under what is known as a C.D.D. discharge, or physical disability discharge, the Red Cross director stationed at that hospital will be notified. The Red Cross will give to the patient a form letter advising him of the various facilities provided for his use by the United States Government, and will discuss with him any matters in that connection which he wishes. This is a preparatory step to an interview with the patient by a representative of the Veterans' Placement Service, so that the service man will be adequately informed *of the purpose of the interview and be* able to get the greatest benefit from it.

9. The Veterans' Placement Service is now in process of training men especially as interviewers for service in the various hospitals, and has already inaugurated this service in the naval hospitals with gratifying results, and will probably have it already installed in a number of the army hospitals by the time this paper is presented at your meeting.

The purpose of the interview is:

(a) To acquaint the service man with the job opportunities open to him, based on his previous experience and his now-existing physical handicaps—if there are any that interfere with his industrial employment;

(b) To ascertain his preferences as to locality and type of job;

(c) To give him the best vocational guidance possible;

(d) In case he is in need of vocational rehabilitation or training, *or in* need of ordinary job training, to make the arrangements with the proper government agency for providing the rehabilitation or training.

The Veterans' Placement man will *make the necessary records of the ser*vice man's educational and occupational history, both preservice and service, so as to provide an adequate groundwork for the employment offices in locating him in a particular job or directing him to the proper line of training. This information is forwarded to the employment office at the locality to which the man intends to proceed upon his discharge from the hospital.

This is advance information based on the probability of the man's discharge, so that such groundwork as is practicable can be laid for either his vocational *training or direct entrance into a job as* is possible before actual discharge. Obviously some of the men marked for discharge will not be discharged at the time indicated, and their cases may take other courses than anticipated. In these cases, action will merely be suspended until discharge is actually accomplished.

10. The official administrative pro-

cedures start with the actual process of discharge. At the present writing, these consist of the following:

(a) Bringing the man's service record up to date.

(b) Clearing his accountability for property and making final pay. (Items with which we are not interested in the procedures under discussion.)

(c) The medical certificate giving complete physical examination. (This is permanently filed with the Veterans' Administration, together with the certificate of original physical examination on entering into the Armed Service, so that they shall have in their possession all the data necessary to determine the question of service-connected disabilities should claims for this arise subsequent to discharge.)

A Form 130, prepared by the Reëmployment Division of Selective Service, giving the family and educational background and occupational experience of the man. This is transmitted to the Reëmployment Division at Washington. The details of handling this will be covered in the following paragraph.

(d) Instructing each man in writing to report immediately to his local Selective Service board the fact of discharge.

(e) Notifying State Director of Selective Service concerned of the fact and type of discharge, together with the name and place of residence of the enlisted man.

(f) Furnishing the nearest representative of the United States Employment Service with the following [illegible] name, civilian occupation, residence, place and date of prospective [illegible]

(g) Processing Form [illegible] 167, Report of Separation, to Adjutant General's Office.

(h) Service of Form 130, as referred to above; Reporting to National Headquarters, Selective Service, under authority of SOS, Office Surgeon General, Cir. Letter 97 in case of certificate of disability discharge.

(i) Forwarding AGO 20 Card, Soldier's Qualification Card, to the Adjutant General's Office.

(j) Discharge papers, including basic army records, such as service record, processed to the Office of Record.

(k) In case of certificate of disability discharge, the Veterans' Administration, as referred to above, receives the following from the discharging authority, under provisions of WD cir. 4, WD 1943:

1. Photostat of the original report of physical examination on entrance into service and the original clinical records.
2. Copy of CDD, AGO Form 40, containing medical diagnosis and physical limitations.
3. Statement of the type of discharge.
4. Application for pension in line of duty cases, or irrespective of line of duty, if upon request of discharged man.

The form is in duplicate, the medical diagnosis appearing on only one of the copies. From the medical diagnosis, a brief statement is prepared, giving the man's limitations in the matter of employment, as, for example,

"Must have job that does not require much standing"
"Cannot do heavy lifting"
'Must have noncompetitive job in quiet surroundings."

This statement of employment limitations, together with the copy of the Form 130, is forwarded through the State Director of Selective Service to the Local Board of the area to which the man is returning, where it is delivered to the Reëmployment Committeeman. Originally, Washington headquarters also simultaneously notified the following agencies in the locality to which the man was proceeding of his probable arrival:

(a) Veterans' Placement Section, U. S. Employment Service.
(b) Veterans' Administration.
(c) Vocational Rehabilitation.
(d) American Red Cross.

The reëmployment committeeman establishes contact with all of these agencies and works in liaison with them. Return postal card notices were sent to each agency on each case as part of the original communication, so that they could notify this headquarters of the arrival or nonarrival of the man by merely checking the card and putting their office stamp on it. (This procedure had to be discontinued for lack of clerical help in Washington, and instead reliance is placed on the reëmployment committeeman maintaining contact and following up cases where the man had not reported to one of the agencies within a reasonable period.)

The rehabilitation to date has been handled through the vocational rehabilitation agencies of the various states. Recent legislation having placed the responsibility for this in the hands of the Veterans' Administration, they are now in process of developing their plans for providing for the vocational rehabilitation and training of those service men needing it. It is the hope of the writer that they will build on the existing state systems, developing and improving these where necessary, rather than starting from scratch and losing the benefit of the experience gained by these agencies over many years of operation in industrial vocational rehabilitation.

Job placements are done primarily through the Veterans' Placement Section of the U. S. Employment Service. This is supplemented wherever needed by efforts of the reëmployment committeeman, who limits himself to seeking jobs for those that the government employment service has been unable to place.

Any claims against the government for disabilities that have not been processed before the man's discharge are handled directly by the local Veterans' Administration representative, the reëmployment committeeman merely seeing that the service man gets in touch with the proper official. Similar procedures are used where the service of the Red Cross is needed to relieve distress either of the man or of his family, the reëmployment committeeman concentrating on insuring that the service man gets in contact with the proper agency whose services he needs. In the case of reinstatement in a former job, in the event the veteran desires assistance this work is done directly by the reëmployment committeeman. If any problems arise that he finds himself unable to settle directly, they are taken up either with the State Reëmployment Officer, operating under the State Director of Selective Service, or with the Reëmployment Division in Washington, depending on the particular condition, there being no red tape rule as to which procedure shall be followed—the most effective and quickest action determining the method used.

12. There is now in preparation a new form, being jointly worked out between the Adjutant General's Office of the Army and the Reëmployment Division of Selective Service in coöperation with other Division of Selective Service interested in different phases of a man's record on his return to civil life. The new form, which will take the place of from nine to eleven of the forms and letters previously made out, will actually cut the paper work of the Army in connection with the discharge of a soldier probably as much as 50 per cent, and will also insure better records and reduce errors.

This record, in addition to the basic data such as the man's name, Army serial number, etc., will show three different addresses for the man, as follows:

(a) Permanent address at time of entering service;

(b) Address at time he registered with local board;

(c) Address to which he expects to proceed upon discharge and where he expects to seek a job or wishes to be rehabilitated, if rehabilitation is necessary.

The type of discharge is shown, together with any specific reasons for the discharge. Also the War Risk Insurance carried by the man, with the future disposition which he wishes to make of it. The information as to allowance and allotments as well as bond purchases, is also shown.

The copies going to the local board and to the Adjutant General contain the medical diagnosis, and all copies except the one given to the man contain a statement of his limitations in the matter of employment.

This form is made up in what is known as "fanfold," comes with one-time use carbons already inserted, the form for each department to which a copy is sent is on a different color paper and marked for that department, and one copy is provided for the man, for his permanent record.

13. In addition to the above form, there is forwarded with the copy going to the reëmployment committeeman at the local board in the area where the man will seek a job his Qualification Card, which is the Adjutant General's Form 20. This form is a card, and contains the following information about the man:

Name, Army Serial Number, Height, Weight, Race
Birthplace of Father, Mother, and Soldier, and date of birth of Soldier
Complete statement of Education
Statement of ability to use Foreign Languages
Marital Status and Number of Dependents
Name and Address of Nearest Relative
Complete data on Main Occupation; Outline data on Second-Best Occupation
Results of Army Aptitude Tests
Highest Position of Leadership
Additional Occupations and Hobbies
Favorite Sports
Talent for Furnishing Public Entertainment

Military Side of the Record shows:

Previous Milit
Service Scho
Military As

Classification in Military Specialties with Degree of Skill
Complete Record of Current Military Service
Date of Entering Service
Special Remarks
Signature of Soldier

14. The administrative procedure for hospital discharges, following adoption of the new simplified Adjutant General Form, will be:

(a) Interview of the prospective dischargee by the Red Cross personnel on duty with the hospital, advising the man of the government's service available to him and his rights for vocational rehabilitation, long-term or permanent hospitalization, as needed, job training, reinstatement in old job, or procurement of new jobs. (This is preparatory to interview by a trained specialist of the Veterans' Placement Service.)

(b) Interview by specially-trained representative of the Veterans' Placement Service of the U. S. Employment Service, of the War Manpower Commission.

This is to determine the job possibilities open to the man, whether he needs vocational rehabilitation or special training, and to give him vocational guidance in selecting a future occupation. The Veterans' Placement Representative obtains, through personal interview, the occupational and educational history of the service man for transmittal to the Veterans' Placement Representative at the local board to which the dischargee is proceeding.

(c) Upon final medical examination determining discharge, the following regular Adjutant General Forms are processed:

(i) Service record completed.

(ii) Pay records completed and final pay made, and transportation provided to destination.

(iii) Clearance for any government property.

(iv) A.G.O. Form .. giving the complete medical examination. A copy of this is forwarded to the Veterans' Administration, which already has copy of the results of the medical examination upon entering the service.

(d) The new simplified Adjutant General's discharge form, in fanfold, is then filled out, in six copies, each on a distinctive color paper, which are forwarded as follows:

Copy 1—to Adjutant General's Office, Machine Records Section, where after the data has been set up on punch card it will be forwarded to National Headquarters, Selective Service System, for compilation of medical data;
Copy 2—to Veterans' Administration for use in connection with pension claims and vocational rehabilitation;
Copy 3—to local board of registration, through state headquarters of registration;
Copy 4—to reëmployment committeeman at point where permanent job is sought, through headquarters of state in which job is sought. There is forwarded with this copy the Soldiers' Qualification Card, Form AGO 20, described in paragraph *13*, above.
Copy 5—to Veterans' Placement Representative, of the U. S. E. S.;
Copy 6—to the discharge for his personal use.*

The above simplified form replaces ten separate forms and letters now pre-

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**Note:* A seventh copy may be added, to furnish information to the Allowance, Allotments, and Bond purchase section.

pared in connection with each man discharged from the Army.

15. The administrative procedures based on the above administrative records will be as follows:

(a) The reëmployment committeeman at the point where permanent job is sought will notify one of the veterans' organizations of the name and address of the dischargee. A representative of the veterans' organization will then call upon the returned service man to welcome him home and make sure that he is fully informed of all the services provided for his benefit by the government and to ascertain whether he has need of any of them, and to place the service man in contact with his reëmployment committeeman if any assistance is desired.

(b) The reëmployment committeeman, as soon as contact is established with the service man will, if the man desires assistance, make sure that he is introduced to those government agencies whose services he desires. The committeeman will follow the case and make sure that there are no delays in placement or in securing action where training is required. From his records he will see that any agency needing additional information in order to serve the veteran is supplied with the necessary data.

Where the man seeks to return to a former job and desires assistance, the reëmployment committeeman gets in touch with the employer and arranges for the man's return to the job.

As far as is practicable the reëmployment committeeman will seek to arrange interviews at definite times for the veteran to avoid the necessity of his waiting long periods in reception rooms. Where forms are to be filled out, assistance will be given, so that the veteran will not have to fill out forms sitting among miscellaneous groups of applicants.

(c) Where the veteran has claims for disability pensions, hospitalization, vocational rehabilitation, etc., the reëmployment committeeman will make sure that he gets to the representative of the Veterans' Administration.

(d) Where vocational rehabilitation is needed, the reëmployment committeeman puts him in touch with the State Vocational Rehabilitation Agency and helps him with his application until such time as some other system is established by the Veterans' Administration, and the reëmployment committeeman will give such assistance until different procedure is established.

(e) Where a new job is a requirement, the veteran is placed in touch with the nearest U. S. Employment Service and its Veterans' Placement Representative, interviews being prearranged as far as is practicable. The reëmployment committeeman checks to see that the employment office is in possession of all necessary information concerning the man, and if not, he supplies it as far as is possible from his own records. He keeps contact with the veteran to see that there is no unnecessary delay in placing him in a job.

16. Where the U. S. Employment Service is unable to place a man, the reëmployment committeeman then seeks to place him by direct action, primarily through the Clearing House Committee now being established.

17. Where an employer has refused to reinstate a veteran in his old job, the reëmployment committeeman first interviews the employer, prepares a brief statement of the case, and turns it over to the Clearing H [illegible]

action. (At present, pending the completion of the Clearing House Committees, the reëmployment committeeman has been handling such cases personally.)[*]

18. The above administrative procedures have been gradually developed during operations which commenced in January, 1941. The results of these operations to date are of interest as bearing on the efficacy of the procedures developed.

Up to December, 1942, something over 500,000 men had been discharged from the services. Of these the majority reinstated themselves in civil life through their own efforts, either returning to their old jobs or procuring new jobs on their own initiative. Only about 10 per cent applied to the reëmployment committeemen for assistance in job placement. Of these 10 per cent, the reinstatements in old jobs were handled directly by the committeeman, and the majority of the placements in new jobs were handled through the U. S. Employment Service, particularly the Veterans' Placement Representatives.

In some communities, notably New York City, where there was a large amount of unemployment, the reëmployment committees also assisted the Employment Service in placing men.

In New York City the coöperation between the U. S. Employment Service and the Reëmployment Division was very close, the Reëmployment Division sending many jobs that came to it over to the Employment Service for filling, and it has recently arranged to place one of its volunteer workers in each of the U. S. Employment Offices *in the city* to assist in placing veterans in jobs in that very difficult labor market.

The problem of returning veterans to *their old jobs* has to date been marked by the most complete coöperation on the part of employers, labor unions, and government departments, and the number of cases requiring even discussion has been so small as to be negligible, and probably totals less than a thousand cases. In *only two cases* has *legal action* been taken, and in one of these it was entirely unnecessary and done without authorization from headquarters. In the other case, a very obstreperous employer, upon being notified that the U. S. Attorney had prepared the case for court *action, promptly reinstated the man* and paid him $648 back-pay for the time he was kept out of the job.

All other cases have been settled either by the reëmployment committeemen on the ground or through mail or telephone communication from the reëmployment Division in Washington, and all have been handled on the basis of applied commonsense and common *decency, and* none has required threats in order to bring about compliance.

In October 1942 there was started the reporting service, through the Red Cross, of men discharged in the hospitals. During the first month, less than 600 cases were reported to us from only some 20 hospitals. More hospitals have been added each week, with a corresponding increase in the number of discharges reported. The last week in May, we are receiving reports of discharges at a rate in excess of 3000 per week, from 210 hospitals, and there are still hospitals that we have not yet gotten on the reporting list.

To date we have had reports on over 30,000 discharges, of which 52 per cent have been reported back to us through the reëmployment committeemen as placed at work in jobs or undergoing rehabilitation. The 48 per cent on which we have not yet received disposition reports equals only the cases reported to us in the past five weeks. Since the curve has begun to flatten out, the percentage reported as placed or underdoing rehabilitation has climbed from 42 per cent to 52 per cent, and is steadily increasing.

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[*] *Note:* The function of the Clearing House Committee is to place behind the U. S. Employment Service and the reëmployment committeeman in handling the problems of the returned veteran the organized resources of the community, both in ironing out difficulties in the return of service men to *old jobs*, the creation of job preferences for veterans, and the education of the community in providing jobs for handicapped soldiers, not merely as an act of justice to them, but as an actual ultimate economy to the community.

A major problem confronting us in the handling of the hospital discharges is our psychoneurotics, running 22 per cent of the total, and stomach ulcers, running 10 per cent. There is indicated the need of an immediate and intensive study of this problem, so that we may provide, in the shortest possible time, adequate means of rehabilitating these men and restoring them to a normal life.

There is appended a table showing the major causes of discharge on medical certificates, up to March 1st, 1943, at which time we had to discontinue this classification for lack of clerical help, as the cases we had to handle were increasing at a rate beyond our ability to obtain personnel for processing.

It is hoped, in connection with the new simplified process, to have the approximate diagnosis entered on the punch card prepared by the Adjutant General for each man whose connection with the service is severed, so that this data may be duplicated as the first step in decreasing our human wasteage.

CONCLUSIONS

The procedure outlined may appear complicated, but in fact it is composed of very simple elements arranged to follow each other in sequence and so coördinated that without duplication or repetition each step completes its phase and transfers the records of the individual to the next agency in shape for it to immediately start on its share of the work, and also insures contact with the veteran as far as this is humanly possible.

A point to be stressed is that the foregoing procedures are based upon the need of coördinating the best efforts of government with the organized efforts of the entire community to accomplish a task of this magnitude with any degree of success.

No government agency could be created that would be large enough, by itself, to handle a problem of this size, and it would be unsound to do so even if it were possible, since we would be creating a permanent organization to meet a peak-load, and would then have to contract. Instead, we reinforce the government agency with the volunteer organized resources of the country, which can then be rapidly contracted as the load contracts, ultimately leaving the permanent work in the hands of the established government agency.

Just as no government agency could perform this task alone, it would be likewise impossible for any volunteer effort—no matter how completely organized—to handle this job without an established government agency through which to coördinate its efforts. The United States Employment Service bears somewhat the relation to the organized civilian support in reëmployment that the regular army does to the civilian army in mobilizing for war. The two are mutually interdependent, and neither can function successfully without the other, and the organized volunteer civilian support of the Reëmployment Division should build up and strengthen the United States Employment Service of the War Manpower Commission, if the best and most permanent effects are to be achieved.

Causes of Medical Discharges in 4714 Cases

As of March 1, 1943

Psychoneurosis	19.77%
Ulcers	10
Asthma	

Heart	6.23
Arthritis	5.60
Bones and Joints	5.07
Ears	3.37
Epilepsy	2.82
Eyes	2.29
Hypertension	2.22
Tuberculosis	2.03
Amputations and Injuries	1.25
Diabetes	.97
Hernia	.75
Undiagnosed	9.39
Miscellaneous	21.06
	99.61%

(Statistics Furnished by Colgate Hoyt, Major, A.U.S., Reëmployment Division)

RÉSUMÉ

Les procédures administratives ayant comme objectif la réintégration des membres de nos forces armées dans la vie civile, surtout du point de vue de pro- ation d'ouvrage, sont étudiées. L'au- eur discute les différentes commissions officielles et leurs fonctions respectives en ce qui concerne le réemploiement. D'après l'auteur chaque cas doit être considéré individuellement car les problèmes de chaque homme exigent une étude spéciale.

SUMARIO

Se trata de los procedimientos administrativos que tengan como objeto la reintegración de miembros de las fuerzas armadas a la vida civil, especialmente del punto de vista del reempleo. Las varias agencias que de eso se ocupan son enumeradas. Especial énfasis se hace, en que cada caso es considerado individualmente y que el problema de cada hombre recibe especial atención.

Выводы

Автор описывает администрационные способы, целью которых является рэинтеграция военных в частную жизнь, особенно с точки зрения возвращения к работе. *Описаны разныя агенции и их функции.* Подчеркнуто однако, что каждый случай подвергается индивидуальной обработке и особенное внимание обращается на личныя задачи каждого солдата.

NEWS ITEMS

(Continued from page 262)

The first **Congress of Faculties and Schools of Medicine of Mexico** was held in Monterrey from April 2 to April 7, 1944. It was sponsored by the Medical Faculty of Nuevo León.

The program for the **Annual Meeting of the Association of Military Surgeons of the United States** to be held at the Pennsylvania Hotel, New York City, Nov. 2-4 inclusive is being rapidly completed. In addition to addresses by the *Surgeons General of the Army*, Navy, U. S. Public Health Service and other distinguished guests, *there will be formal* papers, panel discussions and scientific and technical exhibits on the latest advances in *military medicine*.

The third **Latin-American Congress of Plastic Surgery** will take place October 23-25, 1944, in Santiago and Viña del Mar, Republic of Chile. The Chilean Government requested the Mexican Government for the scientific collaboration of the National University of Mexico. Upon the recommendation of the Mexican Chapter of the International College of Surgeons, the Rector of the *University* of Mexico *appointed* Dr. Esteban Paulín, F.I.C.S., Specialty Regent in *Plastic Surgery to participate in this* Congress.

Classification of War Wounds*

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BRADFORD, ENGLAND

A STATISTICAL survey of wounds could be of immense value to the executive branches of the fighting services. Representatives of the Royal Naval Medical Service, the Royal Army Medical Corps and the Royal Air Force Medical Service, with special knowledge of massed statistics of wounds, should guide the efforts of those responsible for armoring ships, aeroplanes, tanks, lorries, etc. In turn it should be incumbent upon all surgeons to be in a position to correlate their observations in order to supply these Service statisticians with reliable data.

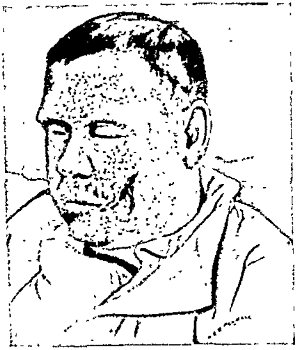

Fig. 1. Case of compound fracture of the jaw with "tattoo" accompanying wounds. The result of a bomb explosion. (British Journal of Surgery)

Multiplicity of wounds. This war differs from its predecessors in the extensive use of aerial weapons. One of the worst features of modern war wounds is their multiplicity. The wounds produced by any kind of bomb (Fig. 1) are notorious in this respect. Grave shock and extensive tissue disruption with early virulent infection characterize these wounds, but this is not all. Added to these is an element of concussion, and frequently the phenomena known as "blast."

As a result of the important part played by the aeroplane in modern warfare, fighting men are as much exposed to the enemy *above* them as they are to the enemy *in front of them.* Because an aerial bomb breaks into innumerable fragments and is as likely to burst behind as in front of the victim, multiple wounds scattered over widespread areas of the body are exceedingly common. One description that has been given of this present conflict is that it is "the war of the crouching man." On hearing the noise of an enemy aeroplane overhead a person instinctively crouches or falls to the ground, so that the back is even more exposed to injury than the front of the body.

Principles in assessing tissue damage caused by a missile. A careful history is important. It is very helpful to know the nature of the missile; whether it is smooth, such as machine-gun bullet or shrapnel ball, or rough, such as a splinter of bomb or shell. The smooth missile tends to take the line of least resistance and to follow fascial planes, where an irregular missile shows no such [illegible] lection. One [illegible] of [illegible]

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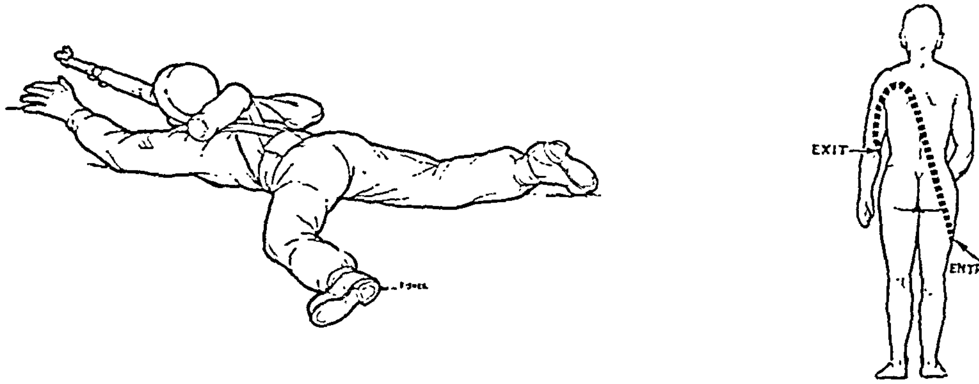
*Presented at the Fourth International Assembly of the International College of Surgeons, held in New York, June, 1943.



Figs. 2 and 3. The apparently erratic course of the missile shown in Fig. 2 is readily explained by a careful inquiry into the patient's posture at the time of wounding (Fig. 3). (Modified from Lilienthal)

quoted of a soldier wounded in the right shoulder. A shrapnel ball was removed from beneath the skin of his right groin. No incapacity resulted. Evidently the smooth missile had followed the fascial planes. Over and over again the patient will indicate that the maximal pain is experienced in a certain area at a distance from the wound. Careful palpation of such an area will often reveal the induration of the missile, which can be detected even at a depth of 2½ in. below the skin surface.

When possible, inquire as to what position the patient was in when the wound was received; whether sitting, lying flat or kneeling; whether walking or running. This is especially important in regard to penetrating wounds of a joint, and in particular the knee joint, for foreign bodies are more easily extracted when the joint is flexed or extended to a greater degree than when the missile entered it.

Seemingly erratic courses of missiles in the body, often wrongly ascribed to ricochet, may *sometimes be explained by* a careful inquiry into exact posture of the patient at the time of wounding (Figs. 2 and 3).

Calculating the extent of the internal damage. Should the greater part of a missile's kinetic energy be expended in damaging superficial structures, little remains to produce deep damage. When this kinetic energy is expended on the surface the deeper damage depends upon the resistance of the structures encountered. Should the missile impinge *upon the soft parts only, a perforating* through-and-through wound is likely to result. On the other hand, if it impinges upon the bone its kinetic energy may suddenly be reduced to zero, with the result that what might have proved a perforation of soft parts only becomes a *site of excessive tissue destruction.* So it comes about that the more extensive the superficial injury the less the probability of damage to deep structures. If the outward and visible damage is comparatively inconspicuous, the important question is, "Is there an exit wound?" *The greatest internal damage is to be* anticipated in cases with a comparatively small wound of entrance and no wound of exit. These are termed "penetrating or lodging wounds."

Fragments of high explosives, owing to their ragged nature, be they ever so small, *inflict greater damage upon soft tissues than do machine-gun bullets or* shrapnel balls. Furthermore, these irregular fragments almost invariably carry in foreign matter, such as pieces of clothing, *a state of affairs favoring early and virulent infection. In addition to pieces of clothing a missile may carry* into the tissues articles carried in the pockets. Thus coins, pencils, buttons, pieces of string, and in one instance a large piece of a miniature New Testament have been extracted from wounds in the upper thigh. On the other hand, a cigarette case or other metallic object carried in a pocket (Fig. 4) has on more than one occasion either stopped or deflected the course of a missile which might otherwise have proved fatal.

The size of the wound of entry is no guide to the size of missile. Skin is an elastic structure and in most cases the skin wound is smaller than the missile which caused it. In wounds of the chest the skin wound is not an indication of the point of entry into the thoracic cavity, as the chest wall is a movable structure. The skin wound is often at a higher or lower level than the actual entrance into the pleural cavity. The track of entry is thus valvelike, and such wounds can produce the most extreme degree of surgical emphysema. Wounds of entry in the skin and in the deep fascia or joint capsule are only approximately at the same level if the body was at rest at the time of wounding.

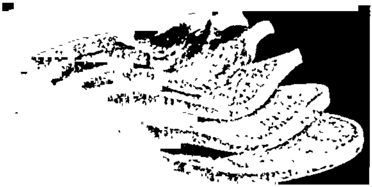


Fig. 4. These six coins carried in the pocket of a body-belt saved the life of a soldier by deflecting a bullet fired from point-blank range. (British Journal of Surgery)

It is important to realize that in gunshot wounds laceration is not always confined to the wound itself; it can involve tissues at a considerable distance. For instance, it is not uncommon for a bone to be fractured, not at the side of impact but at a point some distance away.

NONPENETRATING WOUNDS

Nonpenetrating wounds can be divided into two varieties:

1. *Superficial contusions.* War contusions should never be treated lightly, particularly those involving the head and trunk. Often what appears at first sight to be a trivial contusion is associated with grave internal complications.

2. *Deep contusions* are mainly the outcome of severe crushes brought about by collapsing masonry.

PENETRATING (SYN. LODGING) WOUNDS

Penetrating wounds form a large and important fraction of the total wounds that reach the surgeon. *Penetrating wounds have a wound of entry only.* This wound may vary from an exceedingly small puncture, which in some cases is scarcely visible, to a wound of considerable dimensions.

It is in penetrating wounds that the importance of early x-ray examination and localization of foreign bodies reaches its zenith.

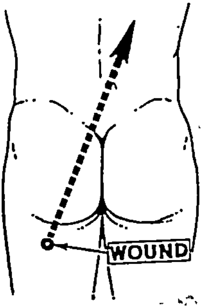


Fig. 5. A wound of o art o
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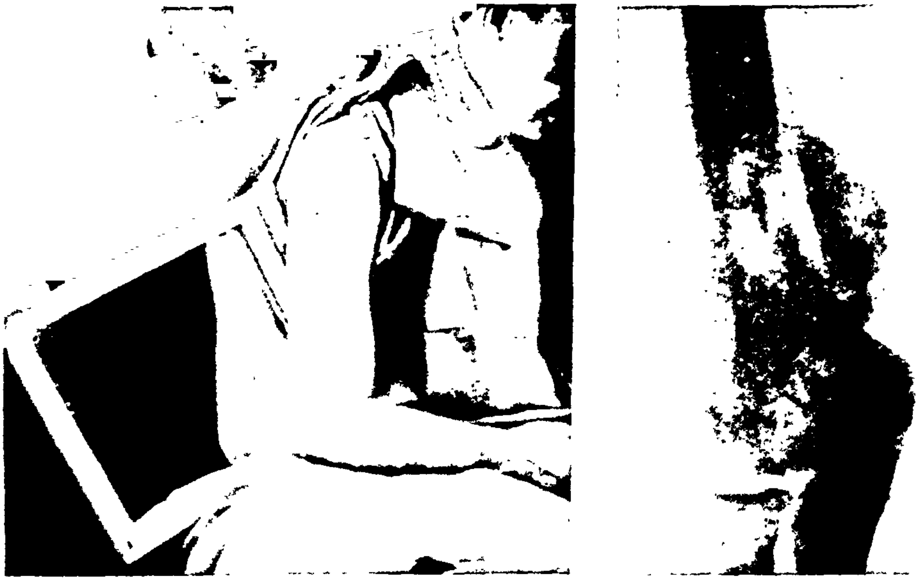
A special caution. For reasons given already in this chapter, wounds of the back of the patient as opposed to his front are relatively frequent. Wounds of the buttocks, upper posterior portion of the thigh and perineum are extremely important from the point of view at once appreciated by a reference to Fig. 5. So often such a wound leading to the peritoneum or to the extra-peritoneal tissues is regarded as a purely local affair until it is too late. This important point is brought out several times in this work, notably by Sir Charles Gordon-Watson in his chapter on the wounds of the rectum. *Suspect every wound in the neighborhood of the buttocks!*

PERFORATING (SYN. TRAVERSING) WOUNDS

Perforating wounds entail a wound of entry and a wound of exit. They possess an advantage over penetrating wounds in that the missile has emerged and no longer remains in the body. The actual damage to tissue varies, but on the whole perforating wounds have a better prognosis than penetrating wounds. Perforating wounds are most often the result of missiles fired at close range, and may comprise:

(a) A small hole of entry and a small hole of exit
(b) A small hole of entry and a large hole of exit
(c) A large hole of entry and a large hole of exit
(d) Gutter wounds.

(a) *A small hole of entry and a small hole of exit* are wounds which, for the most part, are caused by rifle and machine-gun bullets (Figs. 6 and 7). The amount of damage varies. Thus a bullet may traverse a limb without damaging important structures, both entry and exit wounds healing and leaving no incapacity (tunnel wound). Again, a similar bullet may traverse the limb in a direction almost identical with the preceding, and after an hour or two the member will be acutely swollen and tender, denoting damage to an artery of considerable size. The exit and entrance wounds (Figs. 8 and 9) give the observer some idea what damage to expect, since the



Figs. 6 and 7. Perforating wound caused by a machine-gun bullet fired from an aeroplane. The wound of exit is shown in the mirror. Fig. 7 shows the radiograph of this case.

course of the missile is known approximately. Surface anatomy, though useful, is not always a true guide to damage done, because many cases have been seen where the track, judged by the entrance and exit wounds, passed right across the course of such structures as the femoral artery, the sciatic nerve, the brachial artery, etc., without damaging them. Here, again, there are two important considerations upon which the wounded man can usually give information:

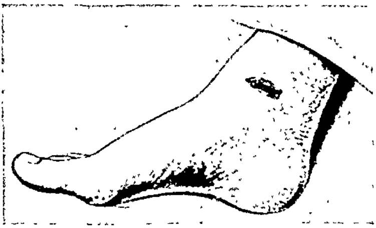


Fig. 8. Entrance wound. (British Journal of Surgery)

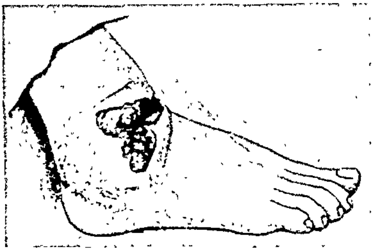


Fig. 9. Exit wound. (British Journal of Surgery)

1. Was he lying down or standing still?
2. Was he running or walking when wounded?

If he was lying down or standing still the entrance and exit wounds give a fairly accurate estimate of the course of the missile. If he was running or walking when wounded, the wound in the skin does not usually correspond in position with the wound in the deep fascia and muscles at either the site of entry or exit. This disparity may be as much as an inch; it is usually somewhat less. The reason for it is obvious, because when the body is in motion the skin is stretched in some parts and relaxed in others. The same phenomenon occurs, to a more marked degree, if the bullet strikes the part obliquely.

TUNNEL (SYN. SETON) WOUNDS

Tunnel, or seton, wounds are those which, while coming under category (a) because they possess a small wound of entrance and a small wound of exit, are set apart because, like a railway tunnel, they are of the same caliber throughout. They are, on the whole, comparatively innocuous.

Tunnel wounds in the neighborhood of large arteries are the commonest cause of traumatic aneurysm. Swollen thighs, the result of hemorrhage, if kept at rest and watched carefully, slowly resume their normal size, providing there is a good circulation in the foot. When the swelling and bruising subside a pulsating mass with a bruit over it makes its appearance. This happened in quite a number of cases, not only in the thigh but in the neck and elsewhere.

Tunnel wounds of the forearm and lower leg should, if possible, be left alone providing the circulation in the hand or foot is good. These wounds, if opened up, often give rise to hemorrhage which is difficult to control.

Tunnel wounds involving the abdomen or thorax may give rise to insignificant sympto though from face tomy
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cera, and serious damage to solid viscera and mesentery.

Tunnel wounds of joints. It frequently happens that there is a valvelike perforation of the capsule and this is of value, both in preventing escape of synovial fluid and blocking the route to infection. For this reason small tunnel wounds of joints ofter remain sterile.

Tunnel wounds involving bone. Simple perforation sometimes occurs, this being seen most frequently in the epiphyses of long bones. A clean perforation of bone is, however, comparatively rare.

Tunnel wounds about the spine may involve the spinal cord or large intra-abdominal or intrathoracic vessels. Death in these cases is rapid and painless, and many cases were seen during active fighting.

(b) *A small hole of entry and a large hole of exit.* This type is almost invariably the result of a missile fired at close quarters striking bone. The lead in the bullet is flattened out and continues its course together, probably with fragments of bone pushed before it. The result is a large lacerated wound of exit. The same result occurs to an even greater degree when the missile is a piece of shell.

Perforating wounds of the head, and often of the thorax, come under this class. In the case of the skull the missile traverses the bony cranium twice. The exit wound is large and a quantity of brain matter is usually protruding. Few such cases reach surgical aid, and even if they do so, recovery is extremely rare. Wounds of the thorax belonging to this class are again usually fatal; ghastly wounds of exit are produced. There are a few examples where large exit wounds of the thorax have been plugged with an ordinary towel and have reached surgical aid. In the case of the abdomen it is not uncommon to see omentum and intestine protruding from the exit wound. Curiously, this type of abdominal wound is often conspicuous by the absence of shock. A number of men so wounded have walked from where they were hit to the regimental aid post. So long as there is no gross concealed damage to viscera or the mesentery the prognosis is good.

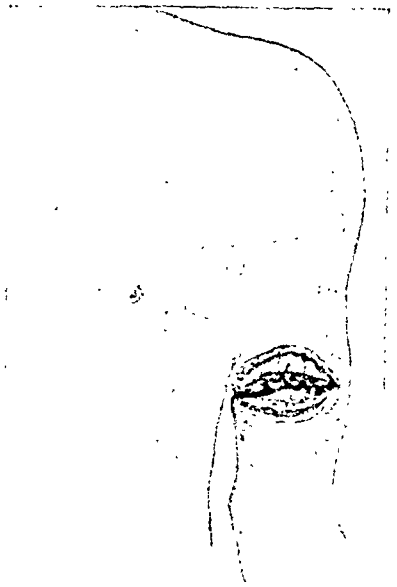

Fig. 10. Gutter wound involving the biceps. (British Journal of Surgery)

(c) *A large hole of entry and a large hole of exit* is usually the result of a direct hit with a piece of shell of considerable size or a ricochet bullet. The wounds are connected by a ragged and torn track overhung by a bridge of tissue consisting of skin and perhaps some of the deeper structures. This bridge, which may or may not contain important structures, is usually in a bruised and battered condition; consequently, it is exceedingly prone to become gangrenous. Wounds belonging to this class are always extremely serious, and early virulent infection is inevitable because of the disruptive effect. To save life and limb, immediate and thorough treatment is imperative. Of course, many of the victims of this type of injury never reach surgical aid. Fortunately there seems to be little or no pain associated with these ghastly wounds.

(d) *Gutter wounds.* As the name implies, the missile ploughs a furrow in the tissues between its entrance and exit (Fig. 10).

INCISED WOUNDS

Under this heading are classified wounds inflicted by miscellaneous weapons, usually the result of hand-to-hand fighting. The bayonet, dagger, knobkerrie and the butt-end of the rifle are usual causative agents. Bayonet wounds are often fatal. The thrust is usually directed either at the throat or at the loins. Soldiers jumping into a trench have become impaled on the upturned bayonet. There is rarely external bleeding, and once the bayonet is thrust home the skin and muscle close tightly on the steel so that a considerable effort is required to extract it.

Knobkerrie wounds are very often fatal. Strictly speaking, these wounds are not true incised wounds, being inflicted by a blunt instrument, but, as also in the case of the butt-end of the rifle, they may be as cleanly cut as if a knife had been used.

Bites are not uncommon in close hand-to-hand fighting.

ACCIDENTAL WOUNDS AND INJURIES

No classification of war wounds would be complete without some reference to this heterogeneous group. Accidental wounds may be divided into wounds inflicted in the fighting zone and those inflicted on the lines of communication.

In the fighting zone these wounds include tears by barbed wire, and rifle and revolver wounds, self-inflicted or otherwise. Self-inflicted bullet wounds are usually situated on the dorsum of the foot or in the palm of the hand and can be recognized by the scorching of the skin around the wound of entry. Accidental wounds are usually the result of forgetting to close the cut-off after cleaning a rifle.

Wounds inflicted on the lines of communication are for the most part due to transport and are the result of mule kicks, runaway horses and machinery accidents.

Though not coming under the heading of accidental wounds yet occurring most frequently on the lines of communication, are certain wounds due to air raids. Not only in these raids have we to consider wounds caused by enemy bombs, but also those caused by pieces of anti-aircraft shells, which have on many occasions proved both serious and fatal.

Parachute injuries form another subgroup of cases and quite a formidable one. Fractures of the lower extremity are commonly found in this group and fractures of the spine are relatively frequent.

Air-screw injuries. Air-screw injuries are yet another variety of "accidental" wounds. Contact with a revolving propeller is, of course, usually fatal, but remarkable cases of recovery after shattering wounds of the thorax from this cause have been reported.

CHANGES OCCURRING IN WOUNDED TISSUES

1. *Disruption.* The immediate change in the tissues after laceration is disruption, and the amount of disruption depends on the velocity of the missile. As has been shown already, disruption is seen at its worst in penetrating (syn. lodging) wounds. Disruption of muscles results in their fasciculi being forced apart and deprived of their blood supply. This is the so-called "muscle stupor" of the French surgeons. The muscle looks like butchers' meat; it does not bleed when cut and does not contract when stimulated. The effects of disruption often extend over a considerable area

around the wound, and tissues so affected are a medium *par excellence* for anaerobic infection.

2. *Reactionary edema.* Disruption is soon followed by reactionary edema. There is an outpouring of lymph into the spaces formed in the disrupted tissues, and the part swells (Fig. 11). In the case of a limb tension beneath the deep fascia may become so great as to jeopardize the circulation. Seymour Barling has shown that during disruption and reactionary edema the tissues are contaminated but not yet visibly infected.

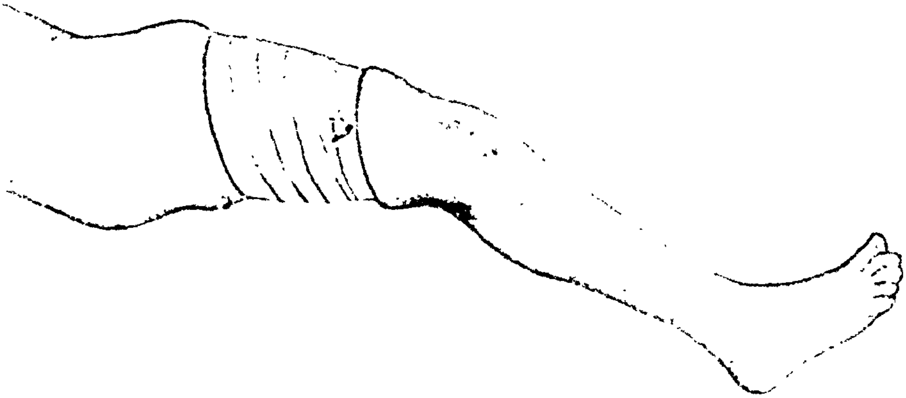

Fig. 11. Reactionary edema. The dressing, which had been applied loosely, is now so tight that it almost acts as a tourniquet.

3. *Visible infection.* In a matter of hours the stage of reactionary edema passes imperceptibly into that of visible infection. The part remains swollen, the swelling often increases. Frequently edematous muscle herniates through the wound (Fig. 12). This produces a "stopper" effect in an opening which is already inadequate and still further impedes the escape of the products of inflammation. Thus, in infected wounds there is established a vicious cycle which creates conditions extraordinarily favorable for the onslaught of bacterial invasion. It will be appreciated that multiplication of anaerobic organisms is particularly facilitated.

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DESICCATION

Untoward changes occurring in tissues formerly healthy become magnified in tissues whose vitality is impaired. Both in the 1914-18 conflict and more than ever in the present war, desiccation has proved a detrimental factor in the local treatment of wounds.

Desiccation is a condition produced in the tissues as a result of fluid starvation; it results more or less insidiously from a disproportion between intake and output of fluid. It was failure to recognize this condition that led to many surgical disappointments at one period in the 1914-18 war.

Hemoconcentration due to desiccation differs from that due to histamine influences in that the plasma protein percentage in the former is not interfered with, consequently water given by mouth or parenterally is retained in the circulation, and the oligemia, with the accompanying degree of viscosity, is corrected.

Under ordinary conditions the loss of fluid per individual per day is about 3 pints. It must be considerably more when that individual is living in a hot desert. Sweating hot dry winds, reduced fluid intake and diarrhea, together with the greater expenditure of energy associated with desert marching, all favor rapid desiccation. Water in the desert is restricted to 2 pints per man per day for all purposes, and may in emergency be cut down to 1 pint. In addition, diarrhea (gyppy stomach) is rife; this type of dysentery is rapidly dehydrating. Thus desert warfare is beset by all the evils productive of desiccation.

Clinical features. Hemoconcentration due to desiccation can be recognized by the dusky bluish color of the skin, lips and lobules of the ear. It is of interest to note the absence of cramps in men in the desert, owing probably to the salt content of the brakish water. These cramps are probably akin to miners' cramp of "bends," which in the case of the latter are preventable by the addition of salt to the miners' beer or food.

SUMMARY

War wounds are classified into the following groups: nonpenetrating wounds; penetrating (lodging) wounds; perforating (traversing) wounds; tunnel (seton) wounds; incised wounds; and accidental wounds and injuries. Changes occurring in wounded tissues (disruption, reactionary edema, visible infection) and desiccation are described.

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RÉSUMÉ

Les plaies de guerre sont classifiées dans les groupes suivants: plaies nonpénétrantes; plaies pénétrantes (avec rétention des projectiles ou autres corps étrangers); plaies compliquées de fistules vu de canalisation; plaies par instrument tranchant (couteau, scalpel, etc.); contusions et écrasements. La séparation des tissus, l'oedème réactionnaire, l'infection visible et la déssiccation qui accompagnent ou compliquent ces plaies sont décrits en détail.

SUMARIO

Las heridas de guerra son clasificadas en los grupos siguientes: Heridas que no penetran; heridas penetrantes y con alojamiento del cuerpo extraño; heridas perforantes y traversantes; heridas a tunel: heridas de incisión y heridas accidentales y de otros daños.

El autor describe minuciosamente los cambios que se o[illegible] n [illegible]s tejid[illegible] heridos y daña[illegible] ede[illegible] reaccionaria, [illegible] t[illegible] desecación).

Выводы

Военные раны классифицируются в следующие группы:

1. Не проникающие раны.
2. Перфорационные, несквозные раны.
3. Перфорационные, сквозные раны.
4. Туннельные (подкожные) раны.
5. Резные раны.
6. Случайные раны и повреждения.

Автор описывает перемены происходящие в раненных тканях (перемещение, реакционный отек, явственное заражение) и высыхание (dessicatio).

PHILADELPHIA—THE MECCA OF SURGEONS

BEFORE and since the union of our States into our now glorious United States of America, Philadelphia has held forth preëminently as the fountain head of medical and surgical knowledge. The spirits of Gross, Agnew, DaCosta, Keen, Deaver, and innumerable other illustrious and world-famous surgeons still stalk the corridors of her institutions of surgical worship and mysteriously guide and stimulate the progress of surgical advancement. In the flesh they have left for our instruction the greatest heritage any surgeon can leave posterity—their many distinguished students who are the teachers of the present generation—the famous surgeons of this great metropolis who give of their time and talent, generously and graciously for the advancement of surgical science.

Philadelphia's six great schools, their hospitals and staffs, at the present time probably represent one of the great aggregations of teaching organizations and talent in the world. These facilities are combining their surgical teaching resources with those of the International College of Surgeons to give our members, invited guests and military personnel of the world the latest in scientific achievement in surgery as it pertains to civilian and military surgical problems during and after this war.

Of necessity our most pressing problems are those incident to winning the battles that are now in progress. Next in importance are those concerned with adequate care of our civilians, and particularly the war industrial worker at home. The third great surgical problem which we must study and plan for now is that of the disabled soldier returning to civilian life. It must be remembered that he is not a professional soldier and in this great democracy of ours he and his comrades will clamor for an immediate return to the status of a civilian as soon as hostilities cease. The military authorities and Veterans' Facility will use all the power and persuasion at their command in an attempt to rehabilitate these soldiers within their own organizations, but in spite of their efforts many of these men will gradually filter out into their former homes and the care of their disabilities and rehabilitation will be the problems of the civilian surgeon. Those actively in practice at the present time must act as a nucleus to plan ahead for their adequate care when the armistice day arrives.

Let us get together in Phidalelphia on October 3-5 to study the surgical problems of the present and the anticipated needs of the future. It is promised to each in attendance that he will feel the glow and inspiration that emanates from this hospital city, most appropriately labeled "THE CITY OF BROTHERLY LOVE."

Surgeons and Events

by

DR. MAX THOREK

JOSEPH-IGNACE GUILLOTIN (1738-1814)

JOSEPH-IGNACE GUILLOTIN, painted by historians and century-old gossip as one of the monsters of the French Revolution, neither invented nor, as the protagonists of poetic justice would have it, died by the beheading machine which bears his name. On December 1, 1789, in a speech on the reformation of the criminal code, he described the machine, saying, ". . . The knife falls like lightning; the head rolls off; the blood spurts; the man no longer exists." The newspaper *"Les Actes des Apôtres"* speaks of his *presenting* to the world a "beheading machine" which "will extend the glory of the French name to the banks of the Bosphorus." The *Révolutions de Paris,* No. 24, Nov. 29 to Dec. 26, 1789, states: "The machine which he (Guillotin) *proposed,* has been called 'guillotine.' "

And the doctor who is credited with having dreamed up a Frankensteinian monster died in bed, in Paris, in 1814, at the good age of seventy-six.

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Guillotin's public life was characterized by humanitarianism rather than sadism. He was a doctor, not a bloodthirsty crackpot.

Joseph-Ignace was one of thirteen children born to Joseph-Alexandre Guillotin, a Court lawyer, and Catherine-Agathe Martin, a judge's daughter. His background may account for his interest in politics. But his work was medicine.

Fig. 1. Engraving of Dr. J. I. Guillotin from the author's collection.

His elementary schooling with the Jesuits at his birthplace, Saintes, completed, he went on to Bordeaux, where he submitted a thesis for his M.A. at the *Collège d'Aquitaine* which produced a sensation. For a shc
at the Jesuit *Collè*
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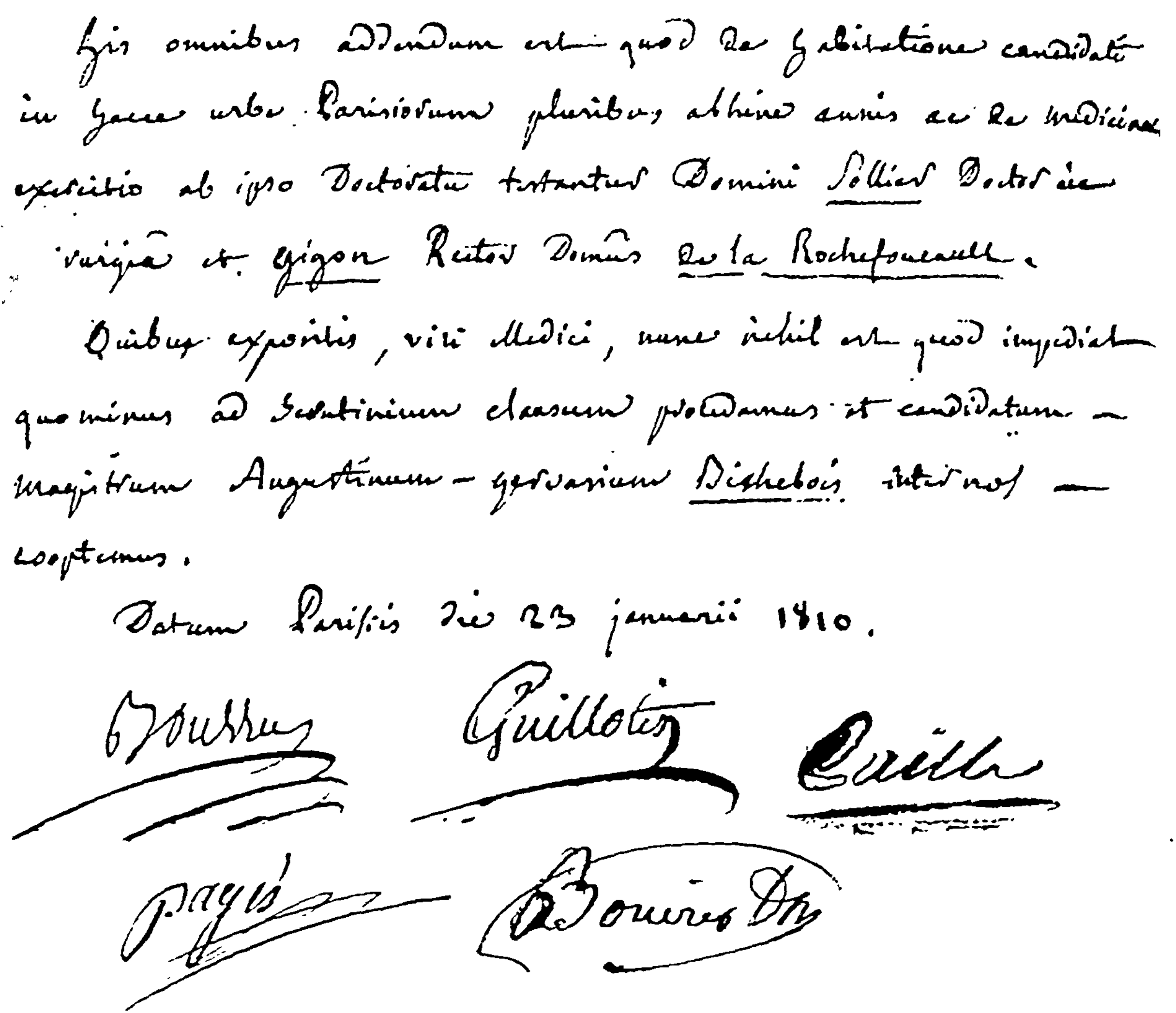
of them. But in 1763
study medicine, w

the celebrated Antoine Petit. He completed his medical work at Reims, receiving his M.D. on January 7, 1768. On February 7 of the same year, he won a scholarship to the Faculty of Medicine of Paris. On October 26, 1770, he passed his examination for the M.D. at the Faculty of Medicine.

Between 1778 and 1883 he became a *docteur-régent* of the *Faculté de Paris,* holding the chair of anatomy, physiology and pathology, and he became one of the best doctors in Paris.

During this period, as a member of the *Académie des Sciences,* where he numbered among his associates Franklin, Lavoisier, Bailly, and Le Roy, he was appointed (1779) by the Government to a commission with Laurent de Jussieu to inquire into the *magnétisme animal* of Mesmer. *Guillotin was one of the men who contributed most to the discrediting of mesmerism.*

Before 1773 he joined the Free Masons. In 1789 he was a member of a Masonic Lodge, *les Neuf-Soeurs,* in Paris. This lodge was a center of philosophic activity and numbered among its members



His omnibus addendum est quod de habitatione candidati in hac urbe Parisiorum pluribus abhinc annis ac de medicinae exercitio ab ipso Doctoratu testantur Domini Sollier Doctor in [illegible] et Gigon Rector Domus de la Rochefoucault.

Quibus expositis, viri Medici, nunc nihil est quod impediat quominus ad Sabatinium classum procedamus et candidatum magistrum Augustinum-gervasium Dishelois inter nos cooptemus.

Datum Parisiis die 23 januarii 1810.

Bourru Guillotin Caille

Pagès Bourier

Fig. 2. Last page of original document, from which the preceding translation was made. (From the author's collection.)

Benjamin Franklin, Bailly, Buffon, Lacépède, l'Abbé Delille, La Harpe, Berquim, Greuze, Vernet, Houdon, Montgolfier, Cabanis, Florian, Monge, Elie de Beaumont, Marmontel, Parny, Roucher, Pilate de Rozier, Voltaire, Helvetius, the Duke of d'Orleans (Philippe-Egalité), the Duke of Chartres, Louis XVI, the philosopher Saint-Martin, the charlatan Joseph Balsamo (called the Count of Cagliostro), implicated in the "Affair of the Diamond Necklace" in 1785.

It was the convocation of the Estates General in 1789 that drew him into the political field. In December 1788 he wrote a pamphlet entitled *"Pétition des citoyens domicilés à Paris,"* exposing his ideas on the *Tiers-État* (Third Estate). Several thousand copies were distributed. Nine days later, he was arrested by the Parlement, but freed, and his popularity grew because of it.

For two and a half years he was inextricably tied up with the Revolution, in constant political activity that brought him in contact with Marmontel, Treilhard, Ducloz-Dugresnoy, Vauvilliers, and Lacretelle. It was his voice which cried "to the Tennis Court" when the meeting place of the Tiers-Etat was locked against the representatives on June 20, 1789. In July of the same year, he joined with Gros and Adrien du Port in urging the rise of the workmen of the Faubourg Saint-Antoine. In October he was one of the deputies who demanded of Louis XVI acceptance of the *"Rights of Man."* On the evening of the same day he was charged with the answer of Louis to the demands for food for starving Paris, the *subsistances.*

On January 12, 1790, he presented a *"Projet d'Administration pour la Ville de Paris,"* whose author was M. de la Métherie, a doctor of medicine. On Feb. 1, 1790, he was chosen Secretary of the Assembly. On February 18, 1790, he sponsored the decree meting out different treatment to the begging friars from those of other orders.

On July 17, 1790, he was chosen with the elder Mirabeau, Siéyès and ten others, to be present at the ceremony celebrating the memory of Benjamin Franklin.

On September 12, 1790, he proposed the establishment of a *Committee of Health.* His proposal was adopted, but its powers were limited to medical education and scientific research.

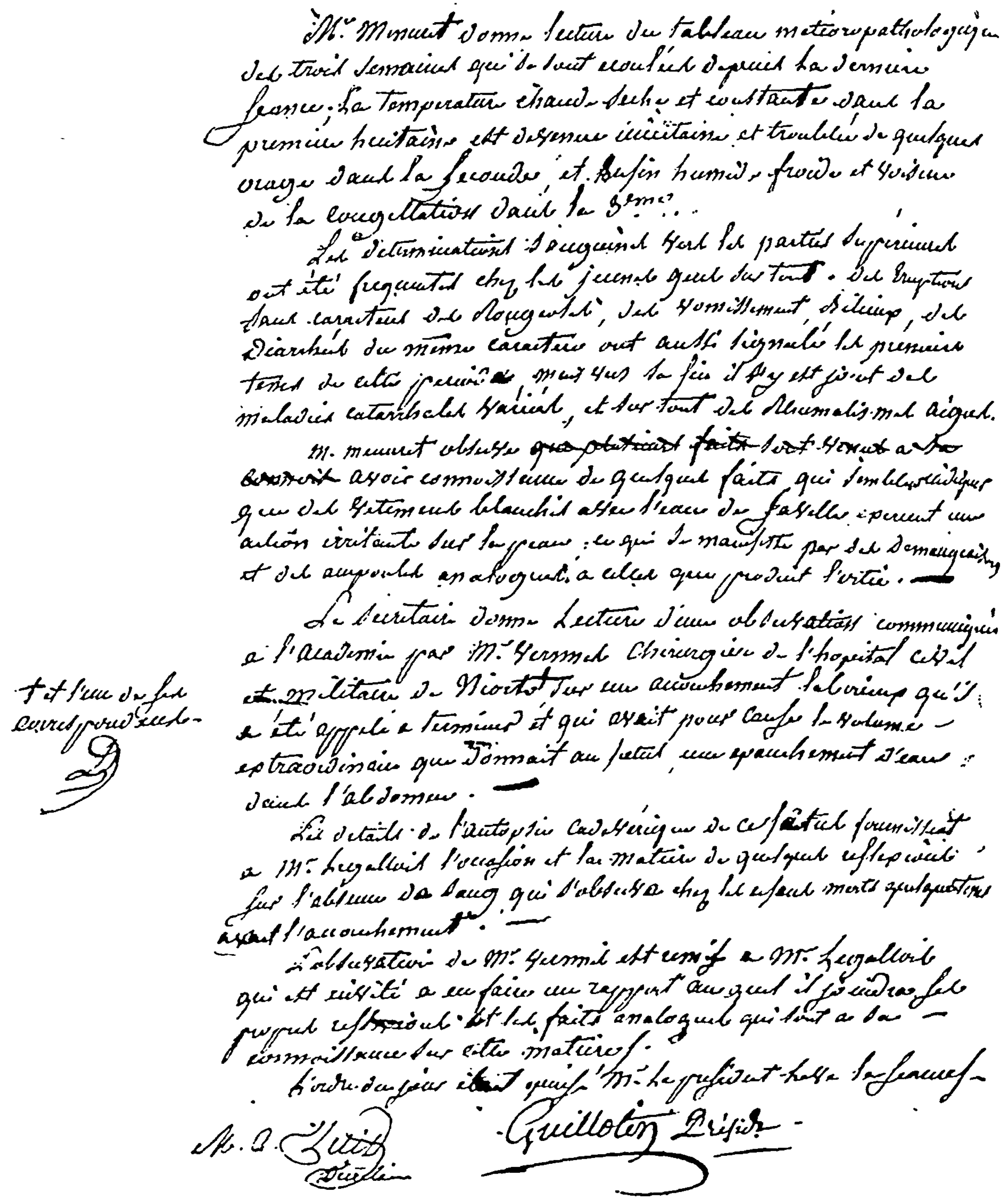
The Year II found him at Arras, as a director of military hospitals. He was suspected of *"moderate"* trends and had to prove his good citizenship. He was imprisoned after the 9th of Thermidor, Year II, but was released.

Then he retired to private life, but not to private activity. As a doctor of the Bureau of Welfare of the *Halles aux Blés,* he addressed to the mayors of the twelve Paris *arrondissements* letters urging their coöperation with the medical committee for propaganda for vaccination. The following year, he was appointed with Thouret to a *"central vaccination committee,"* whose secretary was Husson. In 1803, he was president of the vaccination committee which reported to Bonaparte (First Consul). On March 1, 1805, he was received by Pope Pius VII, then at Paris, to whom he presented a report of this committee on vaccination.

In 1807 he founded *the Société Académique de Médecine,* composed of the old members of the Faculty of Medicine of Paris. He was its president until his death.

But by now, his health was breaking, undermined both by age and intellectual toil. He died at Paris, March 26, 1814, from anthrax of the left shoulder.

The activities of Guillotin as pres[illegible] of the *Academy of* [illegible] he served on the [illegible]



Mr. Menuret donne lecture du tableau météoropathologique des trois semaines qui se sont écoulées depuis la dernière séance; La température chaude sèche et constante dans la première huitaine est devenue incertaine et troublée de quelques orages dans la seconde, et enfin humide froide et voisine de la congélation dans la 3eme..

Les déterminations sanguines vers les parties supérieures ont été fréquentes chez les jeunes gens sur tout. Des éruptions sans caractères de rougeoles, des vomissements, délires, des diarrhées du même caractère ont aussi signalé les premiers temps de cette période, mais vers la fin il y est joint des maladies catarrhales variées, et sur tout des rhumatismes aigues.

M. Menuret observe ~~que plusieurs faits sont venus a sa connoit~~ avoir connoissance de quelques faits qui semblent indiquer que des vêtements blanchis avec l'eau de javelle exercent une action irritante sur la peau; ce qui se manifeste par des démangeaisons et des ampoules analogues a celles que produit l'ortie.

Le secrétaire donne lecture d'une observation communiquée a l'Académie par Mr. Vermel Chirurgien de l'hôpital civil et militaire de Niort sur un accouchement laborieux qu'il a été appelé a terminer et qui avoit pour cause le volume extraordinaire que donnait au fœtus un épanchement d'eau dans l'abdomen.

+ et l'un de ses correspondants

Les détails de l'autopsie cadavérique de ce fœtus fournissent a Mr. Legallois l'occasion et la matière de quelques réflexions sur l'absence du sang qui s'observe chez les enfans morts quelque temps avant l'accouchement.

L'observation de Mr. Vermel est remise a Mr. Legallois qui est invité a en faire un rapport auquel il joindra ses propres réflexions et les faits analogues qui sont a sa connoissance sur cette matière.

L'ordre du jour étant épuisé Mr. le président lève la séance.

Guillotin Présid.

Fig. 3. Final page of a meeting of the Academy of Medicine under the presidency of Dr. Guillotin, held June 14, 1808. Original in author's collection.

The Use of Plasma, Whole Blood and Human Serum Albumin by the Armed Forces*

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THE value of whole blood transfusions in the treatment of casualties resulting from warfare was well established during World War I. The years intervening between 1918 and World War II saw the development of simple, safe methods of performing whole blood transfusion, and this type of therapy has become legion in civilian as well as military medicine.

Although prior to 1938 the technic of performing blood transfusions in fixed hospitals was a routine procedure, very little thought had been given to the use of whole blood or other forms of replacement therapy by mobile units of the Army in the field. The onset of World War II forcefully focused attention upon the need for some effective type of therapy for the treatment of shock, burns, hemorrhage and other complications resulting from warfare. Whole blood was naturally considered as the best transfusion medium to be used, but certain properties of blood enhance the difficulties of making it available in the field. Whole blood must be refrigerated, it must be typed and used in only group specific recipients; transportation over rough terrain causes increased hemolysis unless special precautions are taken, and the safe storage period of whole blood is limited to a few days. These factors argued against the use of whole blood as a routine therapeutic agent in the field. It was necessary, therefore, to investigate other replacement fluids that might replace or substitute for whole blood transfusion.

Fortunately, between the years 1935 and 1940, experimental work on the use of blood plasma and serum for the treatment of shock and burns had been carried out independently by Elliott[1,2]; Mahoney[3]; Levinson[4]; Strumia and Wagner[5]; Harkins[6,7]; Solandt and Best[8]; Low[9]; Elman[10]; Rhodes, Wolfe and Lee[11]; and others. The results of these workers demonstrated conclusively that untyped plasma and serum were suitable and effective substitutes for blood in the treatment of shock, burns and hemorrhage. This preliminary experimental work on plasma and serum proved of great value to the Armed Services in determining the best types of replacement fluids to be adopted for use in the prevention of traumatic shock and the treatment of burns and hemorrhage.

Early in 1940, with the help of the National Research Council, studies were undertaken to determine the most effective type of blood derivative that could be used by the Army and Navy. Plasma, the liquid portion of blood obtained by adding an anticoagulant to whole blood, and serum, the liquid phase that separates when blood is allowed to clot, were both considered. Plasma was selected as the fluid of choice because of its greater yield, ease of preparation and relative freedom from reaction. During the course of these studies it was learned that plasma can be prepared and preserved in three ways: in the liquid, frozen and dried states.

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*Read before the International College of Surgeons, New York, June, 1943.

Liquid plasma, properly collected under a closed system to maintain sterility, can be stored at room temperature (23°) for approximately fifteen months and injected safely after this storage period.

Frozen plasma can be preserved in the frozen state indefinitely. When thawed in a 37° water bath, it provides a clear, amber liquid, equivalent to fresh whole plasma.

Dried plasma, desiccated under vacuum from the shell frozen state to a residual moisture of 1 per cent and stored *in vacuo* can be preserved and safely used after five years' storage. It was concluded from the studies carried on by the National Research Council and the work done by the Army and Navy that dried plasma was the most acceptable blood derivative for the following reasons:

(1) Storage period is prolonged
(2) Requires no refrigeration
(3) Is stable in hot and cold climates
(4) Can be transported with impunity
(5) Typing is not required
(6) Is easily available to medical units in the field
(7) It is retained in the vascular bed and replaces the lost circulating blood volume in shock, burns and hemorrhage.

PLASMA PACKAGE

In order to make plasma available to medical installations in the field, aboard ship and on combined land and sea operations, it was necessary to have a complete plasma kit which would allow for the administration of plasma without additional equipment. Representatives of the Army and Navy working together developed a dispensing set known as the "Standard Army-Navy Package of Dried Plasma" which provided a complete set for the injection of plasma.

A description of the Army-Navy Standard Package of dried plasma follows:

The completed package is made up of two 400 cc. bottles, stoppered with skirted, vaccine-type stoppers, a complete intravenous set and air-way assembly and two metal cans in which the complete set is sealed. The cans are packaged in a tape-sealed water-proofed fiberboard box. One bottle contains the dried plasma obtained from 300 cc. of citrated plasma (equivalent to a pint of blood) and is sealed under 29 in. of vacuum. The vacuum pack serves two purposes: It facilitates the transfer of the distilled water to the plasma bottle under a closed system and it reduces the chance of moisture from the air gaining access to the plasma during storage. The plasma bottle is fitted with a cloth tape for suspending it in the inverted position while the plasma is being injected. The other bottle contains 300 cc. of sterile pyrogen-free distilled water sealed at atmospheric pressure. The intravenous equipment consists of 48 in. of rubber tubing which contains a glass cloth filter for filtering the plasma as it is administered. At one end of the intravenous set is an intravenous needle and at the other end a short needle which connects the set to the plasma bottle. The airway assembly is made up of 9 in. of rubber tubing with a connecting needle attached at one end and a cotton filter at the other. The bottle containing the distilled water and the sterile intravenous equipment is packed in one can which is filled with nitrogen to prevent oxidation of the rubber during the long storage period. The bottle containing the dried plasma along with the sterile intravenous and double-ended needles is sealed in the second can under 25 in. of vacuum. The instructions for reconstituting and using the plasma are lithographed on the plasma can.

The plasma is made ready for use by inserting the double-ended needle in the stopper of the distilled water bottle. This bottle is then inverted and the other end of the needle is plunged into the stopper of the dried plasma bottle. The vacuum in this bottle causes the water to flow in and the plasma being very hydrophylic goes into solution in about ninety seconds. The needles of the airway assembly and intravenous set are connected to the plasma bottle and the plasma is ready to administer.

The plasma package as described above is being assembled for the Army and Navy by nine commercial biological laboratories in the United States. The blood required for the production of this plasma is being obtained by the American Red Cross from volunteer donors. Thirty-three Red Cross Blood Donor Centers have been established in densely populated areas throughout the country and, at the present time, more than 90,000 bleedings are being collected per week. In New York City alone, over 1200 people donate their blood in a single day! As the blood is collected it is transported under refrigeration to the nearest plasma processing laboratory where it is dried and packaged. With this program as outlined, it is anticipated that sufficient quantities of plasma will be made available to supply the needs of our fighting forces all over the world.

In addition to the dried plasma program, liquid, frozen plasma is being prepared in several Army installations in this country, making it possible to supply liquid plasma to all medical installations in the Continental limits. In this way, dried plasma is conserved for use abroad.

ALBUMIN

Another blood derivative which has been developed in the last three years and adopted for use by the Army and Navy is human serum albumin. Albumin, one of the protein constituents of plasma, can be fractionated by the method of Cohn and separated out in a relatively pure form. It makes up 65 per cent of the plasma proteins and it provides approximately 85 per cent of the osmotic pressure exerted by blood. Albumin is supplied for use in a concentrated form, each unit providing 25 grams of albumin dissolved in 100 cc. of a buffered diluent. This quantity of in the "theater of operations" as far forward as the Battalion Aid Station. Human serum albumin will be supplied to units, such as airborne troops and amphibian troops who have limited space for equipment and are unable to carry the larger plasma package. Whole fresh blood and stored blood transfusions will be used in medical units behind the Division Zone.

(a) Human blood plasma is considered to be the most effective blood derivative available at the present time for the treatment of shock and burns, and is equally effective as an emergency measure in the control of hemorrhage.

Since the initiating and sustaining factor in the development of shock is the decrease in circulating blood volume, the treatment resides in replacing the lost volume with a protein fluid which will be retained in the vascular bed. Experimental and clinical experience has proved the efficacy of plasma as a replacement fluid in shock. To obtain the best results plasma must be given early and in sufficient quantity to replace the volume lost. The initial dose required is normally 500 cc. and if the blood pressure is not raised to a physiologic level the quantity should be repeated. It may be necessary to administer as much as 2500 cc. of plasma in the first twenty-four hours following injury in order to maintain a normal blood pressure and prevent anoxia from developing.

Approximately 80 per cent of the deaths that occur in the first forty-eight hours as a result of burns are due to shock. It is apparent, therefore, that shock must be treated early and vigorously in burn cases. Plasma should be injected in large doses and repeated frequently. There are two relatively simple methods that may be used to determine the quantity of plasma required. One is to estimate by the use of Berkow's Chart the percentage of surface area of the body involved. is a burn covering 10 per cent body surface, 1000 cc. of plasma be given in the first twenty-four Likewise, a 30 per cent body bu require approximately 3000 cc. of or roughly for every 10 per cent surface burned, 1000 cc. of should be injected in twenty-four The amount injected should no ever, exceed 4000 cc. The other is to make frequent hematocrit minations and for each point ab per cent registered on the hem tube, 100 cc. of plasma should be

Plasma has proved to be a ver tive emergency therapeutic agent treatment of hemorrhage. Deat hemorrhage is produced, not by erythrocytes, but by loss of ef circulating blood volume. The ment, as in shock, is to replace t ume loss as early as possible. T of plasma as an effective measu lowing hemorrhage has been bor in the treatment of casualties in campaigns in Africa. Of course expected that in cases of severe rhage whole blood in addition to will be administered as soon as it made available.

Increased intracranial pressure ing from head injuries may be r by the use of concentrated plasma usual method of preparing concen plasma is to add only one-fourth normal quantity of diluent to the p when restoring it to the liquid state will yield a 4 X's concentrated so which can be injected intraven The use of concentrated plasma s be confined to the treatment of ce edema; it is not advocated for u shock or burns.

In nutritional edema and hyp teinemia, plasma infusion offers a factory method for helping to re the low blood proteins. It is esp helpful in those cases where operative procedures are indicated. Although it is felt that plasma has its greatest use in surgical emergencies, there are many medical diseases in which plasma has been used as an adjunct to other therapy and the results obtained have been encouraging. Several thousand reports on the use of plasma throughout the Army reveal that plasma has been used for the treatment of pneumonia, infectious jaundice, diabetic coma, meningitis, the nephrotic syndrome, Rocky Mountain spotted fever, malaria, heat exhaustion, cirrhosis and in many other medical diseases. Plasma is effective in these diseases probably because it overcomes the existing hypoproteinemia or prevents the development of periphereal circulatory failure which is frequently associated with medical diseases.

ADVERSE REACTIONS FROM THE ADMINISTRATION OF PLASMA

Although the reaction rate from the use of plasma is much lower than that generally encountered when whole blood is used, the cause of reactions from plasma is worthy of consideration. Adverse reactions from plasma may be due to any one or a combination of the following:

(1) The presence of allergens in the plasma to which the recipient is sensitive
(2) Bacterial contamination of the pooled plasma
(3) Pyrogenic substances in the plasma or distilled water with which the plasma was restored
(4) Improperly cleansed intravenous equipment used for administering plasma
(5) Improper desiccation of plasma
(6) The presence of red-blood-cell stroma in the plasma
(7) Excessive heating of the plasma prior to or during administration.

The reaction rate from liquid or dried plasma may vary from 1.0 per cent to 3.0 per cent. Adverse reactions to plasma are usually urticarial or pyrogenic in nature, the most frequent type resulting from sensitivity in the recipient to allergens present in the plasma. Allergic reactions are usually manifested by local or generalized urticaria or angioneurotic edema. Anaphylactic shock rarely, if ever, occurs following the use of human plasma. Allergic reactions are usually controlled easily by the injection of 1:1000 solution of adrenaline.

Pyrogenic reactions, characterized by chills or rigor followed by a sharp rise in temperature appearing 15 minutes to 1 hour following injection, may result from the use of plasma. The temperature usually returns to a normal level in a few hours without treatment.

Hemolytic reactions have been reported following the intravenous injection of unusually high titred group specific human serum, but this type of reaction is not to be expected when pooled human plasma is injected.

(b) Albumin has been accepted by the Army and Navy as an effective blood derivative for the treatment of shock and burns. It is realized that albumin is not a completely adequate replacement fluid when the patient is dehydrated. In cases of injury complicated by dehydration, it is essential that supplemental fluids and electrolytes be administered by mouth or parenterally when albumin is injected.

For the prevention of shock, one unit of albumin containing 25 grams of albumin in 100 cc. of buffered diluent is injected intravenously in from eight to twelve minutes. If the blood pressure is not restored to normal and the clinical appearance of the patient is not improved, a second unit of albumin should be injected within a short time after the first is given. As a rule it is not necessary to inject a third unit immediately, but it may be used four to six hours later. When in doubt as to the state of hydration, fluids should be injected parenterally immediately after the albumin is given or the albumin may be added to the crystalloid solution in the ratio of 100 cc. of albumin to 1000 cc. of fluid and the two injected together.

Albumin must be used cautiously in patients where concealed hemorrhage may be a complication. Twenty-five per cent albumin draws fluid into the vascular bed rapidly, thereby elevating the blood pressure very soon after the albumin is given. Therefore, great care must be exercised in the use of 25 per cent albumin in casualties with penetrating wounds of the chest or abdomen. When gross hemorrhage is suspected, albumin might well be withheld until the bleeding points are ligated.

(c) Recent developments in the field of replacement fluids have not removed the necessity for whole blood transfusions. Whereas plasma and albumin are effective therapeutic agents in shock and burns, whole blood is still indicated in severe hemorrhage, secondary anemia from burns, infections, carbon monoxide poisoning, and many medical diseases.

For military use, it is considered feasible to use both fresh whole blood and stored blood transfusions. In order to make fresh blood available in the "theater of operations," the distilled water bottle from the Standard Army-Navy Plasma Package will be salvaged and utilized. After the water has been removed from this container to restore plasma to a liquid state, there remains a completely closed sterile container. The required amount of sodium citrate can be introduced into the bottle and it is then ready for the collection of blood. The stopper is removed from the bottle and the blood is collected by gravity through a rubber tube connected to the vein of the donor. When the bottle is filled the stopper is replaced. Blood collected in this manner is administered within four hours after it is collected. An intravenous set salvaged from a plasma package provides a very satisfactory piece of equipment for dispensing the blood. The utilization of salvaged equipment from the used plasma package removes the necessity for transporting large quantities of transfusion apparatus to the "theatre of operation."

It may be necessary to have stored whole blood on hand for immediate use. Equipment will be provided in large fixed medical installations where whole blood can be collected under a "closed system" and stored in refrigerated boxes for a period of five to seven days. It is expected that most of the blood collected for storage will be taken from proved Group O donors, thus making it possible to inject this blood into recipients of all types. Cross matching will be done in all cases when time permits.

SUMMARY

The development and use of plasma and human serum albumin by the Army have been presented. The type of equipment used by the Armed Services for packaging and administering plasma, albumin and whole blood has been described. The indications and clinical use for these replacement fluids have been discussed.

It is concluded that plasma and human serum albumin are adequate replacement fluids for the treatment of traumatic shock and burns, and when used judiciously in conjunction with whole blood, as indicated, plasma and albumin are the most effective replacement fluids now available.

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RÉSUMÉ

Le développement et l'emploi du plasma et de l'albumine de sérum humain sont relatés par l'auteur. Le type de l'outillage employé par l'armée pour l'empaquetage et l'administration du plasma, de l'albumine et du sang entier est expliqué et démontré par Kendrick. Les indications pour l'emploi clinique de ces fluides de remplacement sont formulées.

L'auteur conclue que le plasma et l'albumine séreux humain suffisent pour le traitement du choc traumatique et aussi pour le traitement des brûlures. Il affirme qu'employés judicieusement et en conjunction avec le sang entier, le plasma et l'albumine sont les meilleurs fluides de remplacement que nous possédons actuellement.

SUMARIO

El adelanto en él, y el usa del plasma y del suero-albumen humano en los ejercitos han sido aquí presentados.

El método y equipo en uso en los servicios de los ejercitos para el empaque y para la administración del plasma, el albumen y de sangre completa son tratadas en detalle.

Los indicaciones y el uso clínico de estos flúidos de reemplazo han sido discutidos. Se dice en conclusión que el plasma y el suero-albumen humano son flúidos adecuados para el reemplazo y para el tratamiento del choque traumático y de quemaduras, y si empleados discretamente en conjunto con sangre total, segun indicaciones, el plasma y el albumen son los más efectivos flúidos de reemplazo que hasta ahora existen.

Выводы

Здесь описано развитие применения в армии плазмы и человеческаго сывороточнаго белка. Описана аппаратура, употребляемая армией для упаковки и применения плазмы, белка и всей крови. Также разобраны указания и клиническое употребление этих замещающих жидкостей.

Автор заключает, что при лечении травматическаго *шока и ожогов, плазма* и сывороточный белок очень хороши. Особенно, если есть указание на перелив крови, то эти две жидкости, если правильно применены, являются самыми лучшими для совместнаго употребления со всей кровью.

Gas Casualties*

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I HAVE been asked to discuss gas casualties. By the term "gas casualty," I shall refer to human subjects injured or made ill by the effects of a war gas or chemical agent. Since I am not by profession a physician, I shall make no attempt to describe to you in detail the pathologic or clinical findings in these cases, nor shall I discuss their treatment. I shall instead confine my remarks to a general description of the effects of the more important chemical agents upon the human subject, and try to give you some idea of their effectiveness when employed as an instrument of war.

Many hundreds of poisonous chemical compounds have been investigated but relatively few fulfil the requirements for an effective war gas. These fall into five physiologic classes, but the boundary lines between them are not sharp. There are a number of chemical agents which, while belonging primarily to one class, may produce the effects of agents of one or more other classes. The first of these classes includes the lacrimators, or tear gases, which act almost exclusively upon the eyes to produce pain, spasm of the lids, a flow of tears and temporary interference with vision. In high concentrations they will also redden and irritate the hot sweaty skin. Their effects last only a few minutes and they are used chiefly to harass the enemy. Their casualty effect is nil.

The second class is composed of the vomiting gases. These are arsenical smokes which induce sneezing, swelling of the nasal mucous membranes, a profuse watery discharge from the nose, pain in the sinuses and teeth, and a raw soreness in the windpipe, followed by nausea and vomiting and considerable mental depression. These effects, as you may well imagine, make it difficult for the victim to wear a gas mask. A man fully affected by a vomiting gas looks and feels about as miserable as a human specimen can. Fortunately, however, he is not seriously injured, and it has been demonstrated many times that he is still capable of strenuous physical exertion. If he can be induced by inspiring leadership to carry on, he can do so without injury to himself and the effects generally pass off in a few hours. The casualty effect of these gases is practically nil, but their harassing value is high.

The third class, the choking gases, is an important one from the casualty standpoint. These gases act primarily on the lungs, where in addition to other destructive effects, they induce pulmonary edema which seriously interferes with gaseous exchange. The oxygen of the blood falls and a series of symptoms closely resembling shock supervenes. Death is due to an intense want of oxygen by the body tissues, which usually culminates in a failure of the circulation. The most successful of these gases in World War I were phosgene and chlorine. In high concentrations they are rapidly lethal to men without gas masks, but as employed against American troops in the first World War, the mortality was low, under 3 per cent. Among the 8700 such cases hospitalized in France, the mortality after reaching hospital was very low; only 73 total deaths were recorded, or less than 9 deaths per 1000 hospital cases. It is clear that many of these patients die before reaching hospital, some on the battlefield before medical assistance can get to them. The peak of mortality for the lung irritant cases occurs in first twenty-four hours, and if the patient survives to reach the hospital he has a considerably improved chance for recovery. The choking gases were responsible for 23.5 per cent of all definitely classified A.E.F. gas cases hospitalized in France.

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*Presented at the Fourth International Assembly of the International College of Surgeons, held in New York, June, 1943.

The king of all war gases, mustard gas, belongs to the fourth class. They are known as the blister (or vesicant) gases. These are liquid chemical agents which vaporize slowly to highly toxic vapors. Either the liquids or the vapors burn and injure any part of the body they contact. The eyes and respiratory tract are particularly susceptible but the skin as well is reddened, burned and blistered. When they are ingested by swallowing contaminated saliva, food or water, they violently irritate the gastrointestinal tract and produce all the attendant symptoms of pain, nausea and vomiting. When the respiratory tract is seriously injured, it becomes very susceptible to infection. Secondary bronchopneumonia was responsible for nearly all the deaths due to mustard gas in the World War.

There are a number of vesicant war gases. They may be grouped roughly into three main groups: the mustards, which are compounds containing sulfur; the nitrogen mustards, which are compounds containing nitrogen; and the arsenical vesicants, which are compounds of arsenic. The most effective of the arsenicals, lewisite, has not yet been used in war (unless recently by the Japanese), nor have any of the nitrogen mustards. However, all these latter agents are known to have a more powerfully destructive effect on the eyes than mustard gas, and they are equally or more damaging to the respiratory tract.

Unfortunately for the victim, with the exception of the arsenical vesicants, these agents are very insidious in their action. They produce no immediate pain and some have almost no odor. The victim may be severely or even fatally injured without realizing that he is being exposed. In investigating industrial mustard gas accidents one cannot help being impressed with the fact that the vast majority of the patients did not have any idea they were contaminated and being burned. Pain and reddening of the skin do not begin for some hours, long after the damage is done. Even liquid mustard in the eye is only mildly irritating for the first hour, yet the damage is irreparably done in the first five minutes.

On the other hand, the arsenical vesicants, of which lewisite is the prototype, cause instantaneous excruciating pain upon striking the eye, with immediate spasm of the lids. Stinging pain is felt within 2 or 3 minutes after liquid lewisite contaminates the skin. Its vapor is likewise quite irritating to the eyes and respiratory tract and practically compels wearing of the gas mask. It is therefore probable that if troops escape the liquid lewisite, they may have sufficient warning from its irritating vapors to mask in time to avoid serious injuries of the eyes and respiratory tract.

These arsenical vesicants induce serious or fatal arsenical poisoning by absorption through the skin in a [illegible] als. It
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has yet been widely burned with lewisite. It is known, however, that lewisite rapidly penetrates the human skin and theoretically the systemic absorption of 1 to 2 cc. of lewisite could be fatal.

Some of the nitrogen mustards are likewise fatal to animals by absorption through the skin, but here comparative data in man are lacking. We should be glad to determine this if any of you gentlemen are willing to volunteer as test subjects.

Mustard was certainly the king of all gases in World War I. It accounted for three-fourths of all classified A.E.F. gas casualties hospitalized in France, and for about 90 per cent of all classified gas deaths in hospital. There were nearly 28,000 known mustard gas cases with about 600 deaths, a case fatality of about 2 per cent.

The fifth class of chemical agents is known as the blood and nerve poisons, since their local effects are minimal, and their poisonous properties become manifest only after absorption in the general circulation. The only ones employed to any extent in World War I were arsine gas and hydrocyanic acid gas.

Arsine acts in a number of ways in the body, widely inhibiting enzyme systems, but it manifests itself clinically chiefly by its striking effect upon the red blood cells. In severe cases it causes widespread hemolysis and much of the liberated hemoglobin is passed in the urine. Hemoglobin concentrates in the kidneys and may block the tubules and lead to kidney failure. The subject suffers chills, nervousness, exhaustion and collapse during the stage of hemolysis. He soon develops anemia, and in the course of a few hours jaundice begins to appear. This may progress until he is deeply jaundiced. If he survives the acute stages of the poisoning he may then develop typical symptoms of arsenic poisoning. The vast majority of cases, however, are less severely affected and actually the mortality among the hospitalized A.E.F. cases in the World War was extremely low. There were only three deaths among the 577 cases, a mortality of only ½ per cent.

Other classes of chemical warfare agents such as the screening smokes and incendiaries may cause incidental injuries to troops, but they are not used primarily for that purpose. Certain other gases incident to war, such as carbon monoxide and nitrous fumes, may cause occasional poisoning, but these are not classed as agents of chemical warfare.

It is apparent that while chemical warfare agents caused a large number of casualties, they did not cause many deaths in the first World War. Nearly one-third of all the A.E.F. battle casualties hospitalized in France were due to war gases. The mortality among these cases was only 1¾ per cent. The hospital mortality among those wounded by other weapons was 8.1 per cent. A much more striking picture is obtained if those killed in action or dying before reaching the hospital are included. The overall gas mortality then becomes almost exactly 2 per cent, while the mortality due to all other weapons is 24 per cent. The ratio of all other wounded to gassed cases is therefore 2 to 1 but the ratio of deaths is 12 to 1.

Since it requires a medical staff of about four men per hospitalized casualty to accomplish evacuation and to care for the casualty during the period of hospitalization, a large number of wounded is a serious encumbrance to an army. Therein lies one of the important tactical values of chemical weapons. Based on experience in the last war, one may say they wound but they seldom kill. The average stay in hospital for gas cases is, however, less than half that for other battle injuries. Nearly three million man fighting days were lost by the A.E.F. due to gas, and the average case remained in hospital forty-two days. This compares with an average stay of ninety-five days for non-gassed wounded.

Time does not permit me to analyze for you the disabilities resulting from gas, but it may be said that only four cases of total blindness resulted in the A.E.F.; there were eleven times that many cases caused by other weapons. There were only twenty-nine cases of loss of vision in one eye due to gas and forty times that many due to other weapons. Not a single case of loss of limb or joint was due to gas.

It is a matter of pure speculation to predict the types and rates of gas casualties in the present war, if gas warfare is initiated. Certainly gas will not be used piecemeal as it was in the last war. It is likely that enormous quantities of gas will be dumped on opposing forces from the outset. The airplane will so greatly increase both the capacity and range for the dissemination of chemicals that chemical warfare operations in this war can scarcely be compared with the last war. The only targets which could be reached by gas weapons in the last war were those in the forward combat areas and chemical casualties were almost wholly limited to those areas. In this war there is no such limitation. Targets may and doubtless will be selected in any strategic area that can be reached by bomber planes—not one plane but hundreds of planes.

Attacks may actually be more frequent in rear military areas than in the forward zones, and neither port facilities, naval bases, railway centers nor war factories will be immune. There seems little doubt that the enemy may attempt to terrorize the civilian populace with gas if it seems opportune to do so.

Planes can now spray vesicant gas like rain over a wide area. This falling spray presents a serious hazard to the unprotected eyes and skin, and the vapor that rises from it would damage the unprotected eyes or respiratory tract in a very few minutes. Contaminated clothing would have to be shed quickly to avoid severe body burns, unless the clothing were heavy woolens and the contamination very light.

Aerial bombs charged with gas can be carried with the same facility that high explosive bombs are now carried, and many tons of gas can be dumped on the selected target in the space of a few minutes. It seems probable that an objective will seldom be attacked with gas bombs alone but that these will usually be mixed with high explosive demolition bombs and incendiaries. The difficulties of the fire fighters and rescue squads will be enormously increased under these circumstances and high casualty rates seem inevitable.

Very high crash concentrations of the lethal systemic poisons and lung irritant gases now appear possible with heavy airplane bombs, and it seems probable that the low mortalities obtained with those agents in the World War may be surpassed in this war.

Not much can be said about the new war gases because of necessary military secrecy, but certainly the nitrogen mustards present greatly increased dangers to the eyes.

A gas attack of any significance upon continental United States seems militarily impossible at this time. The Allied Nations have no intention of initiating gas warfare but should the Axis Nations decide to do so they will find us well prepared.

SUMMARY

Chemical agents are classified, according to their effects upon the huma subject, into five physiol [illegible]) tear gases, which ac produce tears and temporary interference with vision; (2) vomiting gases, arsenical smokes which affect the nasal passages, sinuses and windpipe and cause nausea; (3) lung choking gases which produce pulmonary edema; (4) blister (or vesicant) gases, which affect skin, eyes and respiratory organs; (5) blood and nerve poisons which are absorbed into the general circulation. In the present war, danger from chemical warfare is increased since the airplane augments both the capacity and range for the dissemination of chemicals.

RÉSUMÉ

D'après leurs actions sur les tissus humains, les agents chimiques sont en cinq groupes physiologiques: (1) les gaz lachrymogènes qui occasionnent le larmoiement et un trouble temporaire de la vue; (2) les gaz sternutatoires, les vapeurs et fumées arsénicales qui agissent sur les voies nasales, les sinus, le larynx et la trachée; (3) les gaz qui irritent les poumons et qui déterminent l'oedème pulmonaire; (4) les gaz vesicants qui agissent sur la peau, les yeux et les organes respiratoires; (5) les poisons systémiques qui sont absorbés par la circulation vasculaire. Dans la guerre actuelle les dangers de la guerre chimique se trouvent accrus vu que l'aéroplane augmente la capacité et l'étendue de dispersion et de nocivité des agents chimiques.

SUMARIO

Los agentes químicos son clasificados según los efectos producidos en el sistema humano y agrupados así: (1) gas de lágrimas, que, como el nombre lo indica, causa lacrimación y falta de vista; (2) gases estornutatorios, humos arsenicales que irritan los pasages respiratorios, nariz, sinus-accesorios y la traquea; (3) gases irritantes a los pulmones y que causan edema pulmonar; (4) vesicantes gases, que dañan lo piel, ojos y organos de la respiración; (5) venenos sistémicos que penetran la circulación general.

En la guerra actual, el peligro del uso de agentes químicos aumenta, ya que los aereoplanos aumentan la capacidad para la diseminación de los productos químicos.

Выводы

В зависимости от их влияния на человеческий организм химические вещества разделены на пять физиологических групп:

1. Слезные газы, которые поражают глаза и производят слезы и временно мешают зрению.
2. Чихательные газы, мышьяковый дым, которые действуют на носовые проходы, синусы и трахею.
3. Легочные раздражительные газы, производящие отек легких.
4. Обжигающие (производящие пузыри) газы, которые поражают кожу, глаза и дыхательные органы.
5. Общие системные яды, которые поглощаются общим кровообращением.

Самолеты увеличивают опасность химической войны в настоящее время, потому что они увеличивают как количество, так и разстояния роспространения химических веществ.

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Anesthesia during the Circumstances of War*

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THE essayist who proposes to examine official reports, personal communications and the medical literature as a means of determining the anesthetic practices most efficacious in war circumstances should expect disillusionment. If he is handicapped, as I am, by lack of experience other than that obtained in modern civilian hospitals, unwarranted conclusions may be formulated. It will be the purpose in this discussion, therefore, to review critically recent recommendations from those with actual experience or by those with advanced knowledge of the subject.

In the beginning it should be pointed out that the ideal, from the military standpoint, of selecting from among the vast array of anesthetic drugs and methods one or two that would fit the needs of war practice seems not to have been realized. Results with one or another agent or technic that are praised in one combat area have been condemned elsewhere. Moreover, all the drugs and methods in merited use for civilian practice have found their way to the battle areas, and none has gained supremacy to exclude all others.

Optimum anesthesia for the present conflict will be determined by trial and error. The experiences in anesthesia from the first World War, at least those of the United States Army Medical Corps, are of very little value. The chapter written by the anesthetists of the A.E.F. excites little pride in their achievement. Except in a minority of medical units, failures were too common, and when peace came, the proper anesthetic management of many of the war wounded was undetermined. No solution was reached in the problems of pain relief or surgical anesthesia for those in shock or with shock impending, those with severe circulatory depression and those with chest or cranial wounds. The respiratory emergencies such as atelectasis or hypoxia from any cause, fluid depletion, nonsurgical pain, convulsive states and other conditions which are often considered the responsibility of the anesthetist were inadequately handled. It is true that the war experiences were responsible for many advances in surgery and later improvements in anesthetic practices, but for the most part these came too late to benefit many of the victims of war weapons. It is true also that, following the peace, anesthetists gathered their war experiences to produce notable contributions to anesthesia. The classical "signs of anesthesia" were conceived and later elaborated by Guedel while he was faced with the necessity for some guide for army hospital anesthesia technicians. The significance of respiratory obstruction and the value of the endotracheal type airways, which impressed Rowbotham and Magill, among others, while they [illegible] for war [illegible] them vive interes[illegible] avoid obstructed airways. The universal appreciation of oxygen enriched atmospheres during anesthesia and for patients with respiratory diseases was based to some extent upon war experiences. The early recognition and treatment of surgical shock, the avoidance of fatal atelectasis during open chest operations and many more notable advances in anesthesia could be cited as improvements following war experiences, but it must be admitted that the war did little more than focus attention on the need for such improvements.

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*Presented at the Fourth International Assembly of the International College of Surgeons, held in New York, June, 1943.

There have been many important advances in both the art and science of anesthesia during the peaceful years. New drugs are being used, drugs that have not replaced older agents of merit but have increased the choice and permitted more careful individualization of the agent for the patient and operation. New and improved technics and apparatus are available and competent experienced anesthetists are more plentiful. There is no doubt that we are better equipped now for war anesthesia than at any time in the past. However, the knowledge and recommendations for the use of old and new drugs and methods are largely those from proficient anesthetists working under the most favorable circumstances. This knowledge and these recommendations cannot be transferred to mobile warfare where conditions exist which are remote from the refined, exacting surgical practices today, or which may require that operations be completed by inexperienced surgeons and anesthetics administered by anyone available.

BARBITURATES

Present reports on anesthesia from the combat areas are frequently not associated with careful observation. As a consequence they may be summarized generally as incomplete, inconclusive and contradictory. No definite outline for anesthetic practices is available. For example, the use of intravenous barbiturates which have gained a merited popularity in civilian practices is severely condemned by some with war experience and enthusiastically praised by others. An examination of these reports indicate that if used properly the intravenous barbiturates (pentothal sodium is definitely preferred in practically all reports) have a definite usefulness in war circumstances. It has been learned that when these drugs are given intravenously one of two results may be had. First, a small amount may be used to produce unconsciousness with no aim at full barbiturate anesthesia. Second, the drug may be given, without plans for complemental use of other agents, for relaxation or long continued surgical anesthesia. The margin of safety, the convenience and the many desirable features of intravenous barbiturate anesthesia as it may be used in the first instance recommend it strongly for present military use. When used for complete anesthesia it must be recognized that the barbiturates are only applicable for good risk patients who will not be subjected to prolonged severe surgical trauma or considerable blood loss. Bad risk patients, particularly those with circulatory impairment, do not tolerate such anesthesia, nor can it be used to supplement procedures, such as spinal or any other anesthesia, which have affected circulation adversely. It has been determined that the intravenous barbiturates depress circulation and render the respiratory center less sensitive to its normal stimulus, carbon dioxide, when given in large doses.[1] There is experimental and clinical evidence that full anesthetic doses of these drugs are not tolerated well by laboratory animals or patients with circulatory impairment from trauma or hemorrhage.[2] It seems likely that the place the intravenous barbiturates will occupy in war practices, although not completely determined, will be one of great usefulness for inducing anesthesia, for complementing local or regional anesthesia and to complete operations of short to moderate duration for individuals in good physical condition. Numerous reports from England, the African and Southwest Pacific areas indicate that pentothal sodium is being used widely in this fashion with gratifying results. The aged should not be subjected to deep anesthesia with these drugs and their hazards are greatly increased in children.

NITROUS OXIDE, ETHYLENE AND CYCLOPROPANE

The gases, nitrous oxide, ethylene and cyclopropane are not likely to play an intensive rôle in military use except in areas where steel containers, oxygen and modern appliances for their administration are available. However, in modern war most victims of combat are treated in hospitals located far from the fighting lines. These include the civilian war casualties and those evacuated for definitive treatment. There can be no argument against supplying the best hospital anesthesia service available for these wounded. Transportation may obviate the use of gases for mobile warfare, but it will not often be an insurmountable obstacle otherwise. The most condemning argument for not using the gases as they are used in civilian practice is the lack of sufficient numbers of well trained personnel. The gases cannot be used by just anyone who has given clinical anesthesia. The technics are exacting and the dangers in the hands of the inexperienced are great. Nitrous oxide and ethylene are relatively nontoxic drugs with, however, a narrow margin of safety from the standpoint of the asphyxia that frequently is a part of anesthesia when they are used. This factor together with their meager potency relegates them to instillations with qualified anesthetists. Cyclopropane, the most recent addition to the gases, has not been fully evaluated for patients in poor physical condition and those with recent trauma or hemorrhage. However, increasing experience points toward this drug as having a definite usefulness for the patient in shock or impending shock. The rapid induction and recovery, adequate oxygen and a favorable effect upon circulatory depression are features of cyclopropane anesthesia not to be found with other inhalation agents. The liberal use of cyclopropane during the present conflict has not been reported. In England the drug is scarce and, for the most part, reserved for use in thoracic surgery where it has been found to be exceptionally useful.[3] Another theater having an inadequate supply of cyclopropane but finding it valuable was that occupied by the Australians in Africa.[4]

ETHER AND CHLOROFORM

The volatile agents, ether and chloroform, played the major rôle in anesthesia during the first World War. Ether stands high as an anesthetic agent under such circumstances as war imposes. Ether anesthesia is not more desirable than properly administered anesthesia with other agents from the standpoint of morbidity and mortality, but when the inexperienced need to be pressed into service there is much less chance (the results of such anesthesia are governed largely by the laws of chance) of committing grave errors with ether. No other agent can be used as carelessly or improperly and be reward

good surgical results and l

There are better methods for administering ether than by "open drop" and these should be employed whenever possible, but anyone acquainted with anesthesia as practiced in many hospitals in America today would be remiss if he did not place "open drop ether" first for use by those with no or a limited experience.

Chloroform, because of its potency, ease of administration and nonexplosiveness, will have a definite appeal for military anesthetists. It is not used by the Army Medical Corps here, but in England, where it is regularly found in everyday use, it is employed. It is not as popular with the British, as determined by reports, as it was at the beginning of the war. It is being replaced by barbiturates, cyclopropane, when possible, and spinal anesthesia. The question whether chloroform, because it may produce fatalities from liver necrosis, renal insufficiency or cardiac effects, is to be absolutely avoided for surgical anesthesia is not settled. The infrequency of such complications when it is given by those familiar with its use indicates that it may have a definite usefulness in anesthesia. It should be avoided except where there is a specific need for a drug with maximum potency, noninflammability and rapid recovery, and by those unfamiliar with its action. Chloroform is considered indispensable by the Navy because of the small bulk needed and its noninflammability.

TRICHLORETHYLENE

Triolene is the British trade name given to trichlorethylene, a volatile agent being employed in England and to some extent here. This drug is noninflammable and can be given by simple technics. It has been recommended to replace chloroform when it is necessary to administer a noninflammable agent by means of a machine: for example, in diathermy operations on the throat and upper air passages. The drug has a limited solubility in body fluids which may be desirable from the standpoint of overdosage but it also makes satisfactory anesthesia difficult in many cases. The drug has not yet been used clinically or tested sufficiently in the laboratory to evaluate its cardio-respiratory effects. The respiratory rate is increased but respiratory excursions are shallow. The heart rate is slowed, arrhythmias have been noted, and there is often an instability of the systemic blood pressure.

VINETHENE AND ETHYL CHLORIDE

Vinethene and ethyl chloride, other volatile agents, have a limited place in civilian anesthesia practices. Their limitations need no discussion. It is unlikely that they would be specifically indicated for mobile military installations if the other agents discussed were available. No reports have been reviewed with particular recommendations for their use in the present circumstances.

A question of some magnitude that may influence the anesthetic practices with the armed forces is the explosion hazard with many of the agents. This danger is not so important from the standpoint of accidents during clinical use but it is the bigger problem of transport and storage. Reference is made to the subject for completeness only. Such decisions cannot be made by the uninformed physician.

MORPHINE

Morphine and other opiates have been used universally for preanesthetic medication. Most often they have been combined with atropine or scopolamine and given hypodermically some time before anesthesia is to be induced. This practice has been found unsatisfactory in many instances where large numbers of casualties were to be treated surgically without the benefit of definite or planned operating schedules. The time honored dose of "¼ grain by hypo" due to the slow and uncertain rate of absorption is giving way to larger amounts administered intravenously. When given by vein in quantities sufficient for full effect without dangerous respiratory depression, morphine can be used to carry most of the burden of anesthesia. If scopolamine is combined with it amnesia results. Recently substitutes for morphine have been prepared which have a more favorable effect upon respirations. The German Army employs one of these known as Eukodal. "Eukodal is given intravenously with scopolamine and a vasopressor of the ephedrine type in amounts which produce profound 'twilight sleep' for several hours. Circulation and respirations are not unduly depressed and many surgical procedures may be completed without additional anesthesia. When one is needed ether is chosen, and very little is required."[5] An analgesic introduced in Germany as Dolantin, known in England as Pethidine and here as Demerol, has been used as a substitute for morphine. It does not depress respirations as do comparable amounts of morphine, the other side effects are less frequent and no more severe.

TECHNICS

It rarely follows that the agents used for inhalation anesthesia are more important to the outcome than are the technics employed. The high accomplishments of inhalation anesthesia during recent years in addition to the introduction of cyclopropane, are closed rebreathing or absorption of carbon dioxide from anesthetic atmospheres and the development of technics using endotrachael airways. Cyclopropane and carbon dioxide absorbers may need to be limited to certain non[illegible] [illegible] but the endotracheal airway and laryngoscope should be a part of every anesthetist's equipment anywhere. The dangers from respiratory obstruction cannot be overcome by anesthetic drugs. Maintaining an airway will provide the necessary means to prevent anesthetic deaths more often than stimulants, oxygen or resuscitators. During coma severe circulatory depression, profound anesthesia, thoracic, head, face and neck operations the endotracheal airway and a proficiency in its use may often provide the difference between safe, satisfactory anesthesia and dangerous, inefficient anesthesia, regardless of the drugs employed. The Medical Corps of the United States armed forces recognize the value of endotracheal airways and have made them a part of the standard equipment.

Regional anesthesia has a definite appeal in military surgery. The equipment is readily available. Fires and explosions, transportation and many other factors incidental to anesthetic supplies are overcome with the syringe, needles and solutions required. Moreover, the various technics for employing local anesthetic drugs provide a wide selection to meet varying circumstances. Among the regional methods, spinal anesthesia enjoys the greater popularity. There is no need to discuss the use of spinal anesthesia in modern civilian surgical practice. Moreover, with the preference of many surgeons and anesthetists already established, its use in wartime will continue to be [illegible] The results of most [illegible] which spinal anesthesia is [illegible] wounded casualties [illegible] or impending [illegible] at the present [illegible] negative. In [illegible] spinal anesthesia in [illegible] has led [illegible] hypotension.

companies spinal anesthesia for abdominal surgery may be combatted with vasoconstrictor agents in the patient who is not in shock. In patients who have suffered hemorrhage or severe trauma, vasoconstriction is already intense and imposing vasomotor paralysis merely removes a mechanism for defense against circulatory collapse.

Infiltration of local anesthetic drugs at the site of the operation is often considered when surgery is to be completed for patients in poor physical condition, especially from blood loss, trauma, or other serious physiologic impairments. Where such injections can be made with a safe amount of drug so as to provide adequate operating conditions, the only objection to their use is the psychic effect of surgery on the conscious patient. There is some indication that war circumstances imposes psychologic injuries often which are not common to civilian practice. The emotional crisis of aerial warfare, the separation from friends and relatives, the inevitable confusion and strange surroundings together with physical fatigue and mental trauma is poor preparation for the surgical patient, and he is less likely to have the lethargy or emotional control to permit surgery if he is conscious. Reported experiences indicate that general anesthesia is to be preferred if it can be used.

The use of regional nerve blocks has a definite place in wartime surgery. The most serious drawback remains the technical difficulties encountered in performing the injections. Nerve blocks are not satisfactory in a large percentage of cases, unless applied by those with special skill and experience. The most optimistic reports on regional anesthesia have come from the Russian (a few from French) experiences. Various nerve blocks are used widely in these armies with satisfactory results. It would serve no useful purpose to enumerate the many nerve blocks that can be employed since they include all parts of the body. It should be remembered that motor function is temporarily depressed with adequate nerve blocks and that they may serve this purpose and be combined with a light degree of general anesthesia. Probably the greatest use for regional anesthesia for the wounded is the therapy of pain. Such procedures as paravertebral blocks for fractured ribs, mandibular blocks for fractured mandible, brachial plexus blocks for injuries to the shoulder or arm, intramuscular injections for myalgia or contractions, the local injections for sprains and at the site of fractures are especially useful in transporting patients and to avoid large amounts of opiates. One is led to believe that these procedures are not being used as frequently as might be indicated.

SUMMARY

The ideal method for anesthesia during war circumstances is undetermined. Various drugs and technics are proving of value, and none that has a merited usefulness in civilian practice need be avoided. The use of intravenous barbiturates is being widely investigated for the war wounded with promising results. Their technical application is being adjusted to meet the needs of military use. Ether remains the choice of many. Regional anesthesia by local infiltration or nerve block is proving of value. Spinal anesthesia is being avoided for the seriously wounded. The gases nitrous oxide and cyclopropane are useful in nonmobile installations. The importance of the airway and the use of the endotracheal type are receiving especial attention. The ability of the anesthetist and the proper individualization of the method for the patient remain the factors chiefly responsible for the success of anesthetic practices of war.

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RÉSUMÉ

La méthode idéale d'anesthésie pour les blessés de guerre n'est pas déterminée. Différentes drogues et differentes techniques se sont montrées utiles, et toute méthode qui a démontré son utilité dans la pratique civile ne doit pas être abandonnée sans bonne raison. L'emploi intraveineux des barbiturates est à l'étude et promet d'être satisfaisant pour les blessures de guerre. Il faut adapter son choix de méthode aux conditions environnantes. Ether est le choix de beaucoup. L'anesthésie régionale par infiltration locale ou par blockage de nerfs a fait ses preuves. L'anesthésie rachidienne n'est pas beaucoup employée chez les grands blessés. L'oxide nitreux et le cyclopropane sont utiles dans les installations non-mobiles. L'importance des voies aériennes et l'emploi d'administration endotrachéale sont à l'étude et donnent de grandes espérances. La compétence de l'anesthétiste et l'emploi de l'anesthétique le plus approprié au malade sont les facteurs les plus importants pour le succès de l'anesthésie et la sécurité du malade.

SUMARIO

La anesthesia ideal, en las circunstancias de guerra, está aún indeterminada. Varias drogas y técnicas han probado ser útiles y, en efecto, ninguno de los métodos que han dado aceptable uso en la práctica civil podrán civil, podrán ser excluídos.

El uso de los barbiturates por la via entravenosa están recibiendo largo investigación para el uso en los dañados de guerra con resultados que prometen. La aplicación técnica de estos está siendo adaptada al uso de las necesidades militares. El eter es aún preferido por muchos. La anestesia regional por medio de infiltración local (nerve-block) ha sido útil. Se evita la anestesia raquidea en los casos de daños serios. Los gases (gas-hilerante o protoxido de nitrogeno, y el ciclopropano) son utiles en instalaciones móviles.

La importancia del respiradero y el uso del endotraqueal en anestesia están recibiendo especial atención. La abilidad del anestetista y la individualización del método en cada paciente, son siempre los factores esenciales para el éxito de la anestesia en la práctica de guerra.

Выводы

Трудно определить идеальный метод анэстезии в обстановке войны. Хотя многие препараты и методики являются очень важными, в то же время нельзя отвергнуть ни один метод, который оказался полезным в мирной работе. Употребление интравенозных барбитурных препаратов для военных раненых сейчас очень широко изследуется и повидимому принесет хорошие результаты. Сейчас вырабатавыется методика их применения, приспособленная к нуждам войны. Многие все еще предпочитают эфир. Областная анэстезия посредством местной инфильтрации или посредством нервнаго блока также является важным способом.

Газы, особенно N_2O и циклопропан, также очень полезны, но не особенно применимы в летучих отрядах.

Особенная важность приписана трубке для прохождения воздуха, особенно типу трубки, которая приспособлена для ввода в трахею (эндотрахенная воздушно-проводная трубка).

Несмотря на разные методы, способность анэстетиста и правильная индивидуализация метода [illegible] кажд [illegible] является главным [illegible] анэстетической [illegible] новке.

Desgarro Total de la Cara Posterior e Inferior de la Vejiga Fistula Rectovaginal*

(Total Rupture of the Posterior and Inferior Aspects of the Bladder—Rectovaginal Fistula)

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SUMMARY

The author reviews the treatment of vesicovaginal fistulas of major degree. Since 1932 he has operated on a series of cases employing the same technic with excellent results. He found out that it is possible even in the most difficult cases, even those presenting apparently unsurmountable technical difficulty, to reconstruct successfully complete tears of the vagina, provided a rigorous technic is followed.

EL CASO es de sumo interés, dadas las múltiples lesiones a que dió orígen un enorme calculo vesical. Su acción de decúbito destruyó las paredes inferior de la vejiga y anterior de la vagina, se alojó en esta última, e empedida por el himen su exteriorización, destruyó después las paredes posterior de la vagina y anterior del recto, en el que se incrustó. En esas condiciones ingresó al hospital.

Historia clínica N° 4.838.A Servicio del Servicio General de Mujeres del Hospital Fiorito. C.A., 18 años, argentina. Ingresa el 30 de Noviembre de 1936. Antecedentes hereditarios. — Sin importancia. Antecedentes personales. —Menarquia a los 14 años, dolorosas, escasa cantidad, dos a tres días de duración; amenorreas repetidas que no puede precisar; últimamente irregulares en su aparición. Escarlatina a los siete años; dice que quedó con nefritis. Enfermedad actual (referida a Noviembre de 1936). —Desde hace cuatro años dolores en la región lumbar e hipogastrio. Disuria, polaquiuria. Orina turbia. Le hicieron tratramiento médico sin mejorar. Nunca le practicaron tacto rectal ni vaginal.

Poco a poco aumentan todos esos fenómenos hasta hacerse intolerables; comienza a perder orina, aunque creía que era debido a sus constantes pujos que le provocaban esfuerzos para orinar. Mueve el vientre con dificultad. Tiene temperatura. El estado general se ha resentido, y al ingresar está con dolor constante en el bajo vientre, con disuria, piuria, polaquiuria y pérdidas de muy mal olor por la vagina. Estado actual. Gran pérdida de peso, adelgazamiento visible. Tinte amarillo-terroso. Conjuntivas subictéricas. Lengua roja y seca. Dientes cubiertos por fuliginosidades. Cabeza, cuello y tórax, normales. Examen genital, por la vulva sale líquido turbio con olor a orina; gran eczema e irritación de la vulva. Himen conservado, permite la introducción del dedo índice.

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* Presented at the Third International Assembly of the International College of Surgeons held in Mexico City, August, 1941.

En la vagina se percibe un cuerpo extraño con los caracteres de gran cálculo que allí está enclavado; es imposible seguir explorando bien, por lo que se da anestesia general con cloruro de etilo. El cálculo es de tamaño mayor que el de un huevo de gallina. Al sondar la vejiga se comprueba la ruptura de la pared inferior de la misma, por donde sale el cálculo y se asienta en la pared posterior de la vagina. Simultaneamente se hace tacto rectal y se comprueba que el cálculo ha perforado la pared vaginal posterior y la rectal.

Se lo va destruyendo y se lo extrae a pedazos; se aprecia entonces la rotura completa de la pared inferior de la vejiga y la gran fístula recto-vaginal. La uretra está hacia arriba y la vejiga se ha roto por debajo del cuello. Extraído el cálculo que provocaba tantos dolores, se trata durante cuatro meses de mejorar el estado de la vulva y vagina, y se da un régimen alimenticio para combatir la fosfaturia. A pesar del enorme desgarro vesical, se decide operar para reconstruir la vejiga y, al mismo tiempo, tratar la fístula recto-vaginal.

El plan quirúrgico desarrollado fué: *Primera operación* (abril de 1937). A Eter. Se practica un ano contranatura ilíaco izquierdo del asa sigmoidea con espolón. Así se logra mejorar el estado séptico de la vagina y se reduce bastante el tamaño de la fístula rectovaginal. Curaciones con Sagrotán.

Segunda operación (julio 1° de 1937). Anestesia raquídea. Técnica de Jones. Incisión de Schuchardt izquierda. Se va librando ampliamente el labio posterior del desgarro vesical. Se separa la vejiga y su fascia de la pared anterior de la vagina con su fascia y se tiene así preparado el colgajo inferior. El labio superior del desgarro vesical y de la pared vaginal se lo moviliza en la extensión de un centímetro y se disocia en sus planos lo que es verdaderamente dificultoso. Se coloca por uretra una sonda de Pezzer.

Se inicia la reconstrucción de los planos, para lo cual antes se hizo una disección de la pared vesical en sus planos: (a) mucoso y muscular; (b) fascia vesical; (c) fascia vaginal. Las suturas de los planos se realizan horizontalmente: (a) el mucoso-muscular con puntos invaginantes, no perforantes y con catgut cromado; (b) y (c) con catgut fino. Por último, sutura de la mucosa vaginal. Hacia el ángulo derecho las suturas quedaron tensas, pues el campo era muy estrecho y no se quiso efectuar la incisión de Schuchardt también derecha.

Cierre de la fístula recto-vaginal. Se secciona la pared vaginal posterior en losanje alrededor del orificio fistuloso.

Se diseca bien la mucosa vaginal y luego la fascia pre-rectal.

Se separa la pared rectal de su fascia.

Le reconstrucción se hace en tres planos de suturas (a) pared de recto, con puntos separados, no perforantes e invaginantes de catgut cromado. (b) Se hace un plano de la fascia pre-rectal también con catgut cromado. (c) Sutura de la vagina con puntos separados de catgut.

Como siempre en estos casos se atiende extremadamente el postoperatorio, en especial el cuidado de la sonda de Pezzer. Hay una capacidad vesical mínima y gran precipitatión de fosfatos sobre la sonda. Se practican pequeños y repetidos lavados e instilaciones con aceite gomenolado.

A los diez días se retira la sonda de Pezzer; la enferma debe orinar cada diez minutos, y cuando [illegible] de pi[illegible]rde algo de orina por [illegible] ñ [illegible] o del ángulo derecho de la sutura. Vuélvese a colocar la sonda permanente durante quince días. La pequeña fístula residual no cierra; se hace un retoque. La fístula recto-vaginal ha cerrado bien.

Tercera operación (15 de agosto de 1937). Raquídea. Técnica de Jones. Incisión de Schuchardt derecha. Luego incisión en losanje alrededor de la fístula residual que tiene el tamaño de una lenteja.

Se procuran tres planos: (a) mucosa vaginal; (b) fascia vaginal; (c) fascia vesical y vejiga. Se reconstruye en tres planos de catgut 00. Sonda permanente de Pezzer. Se retira a los diez días. La fístula ha cerrado. Trátase después, de un mes de ir aumentando la capacidad vesical mediante lavados.

Cuarta operación (10 de noviembre de 1937).—Se coloca el enterótomo de Dupuytren. La derivación de las materias se hace en su mayor parte por el ano natural, pero tiene escasas pérdidas por el ano ilíaco. Habrá que completar el cierre quirúrgicamente.

Al retirarse la paciente, la capacidad vesical era de 150 cc., orinaba muy bien, pero se le hacián instilaciones diarias con aceite gomenolado. Habitualmente se ha notado disminución de la capacidad vesical. En la actualidad preocupa su fosfaturia, que persiste, formándose pequeños cálculos que se eliminaron espontaneamente. Hemos recurrido al Profesor Escudero para su tratamiento dietético.

Basta leer esta breve historia clínica y repasar las figuras respectivas para apreciar la importancia del desgarro vesical y la fístula recto-vaginal que presentaba la enferma.

La impresión que el cirujano recoge al ver uno de estos desgarros, es desfavorable para su cierre quirúrgico; y no es raro ver que se opta por la operación de Coffey, lo que implica derivar los uréteres al recto.

El ejemplo de desgarros totales de vejiga como el que presentara a la Sociedad de Cirugía de Buenos Aires en 1932, permitió adoptar este plan quirúrgico muy semejante al ilustrado en aquella oportunidad y cuya consulta será útil para casos semejantes.

SUMARIO

En varias publicaciones anteriores, me he ocupado del tratamiento de las fístulas vésico-vaginales graves, trabajo que ha sido ilustrado especialmente en la Prensa Médica Argentina el 30 de Agosto de 1932. Este trabajo ha quedado en el límite de las publicaciones de las revistas argentinas. Posterioramente he operado con esa misma técnica a varios enfermos, con resultados excelentes.

Hoy envío a ese Honorable Congreso el caso que se ilustra y describo a continuación, que demuestra que es posible, aún en casos de dificultades técnicas que parecerían insalvables, reconstruir y tener éxito en desgarros totales de vagina, adaptándose a una técnica rigurosa.

La descripción de este caso, que está ilustrado en las láminas adjuntas, me permite ser breve en esta comunicación, que presento a la consideración de los distinguidos cirujanos que participan en esa Asamblea General de Cirujanos.

RÉSUMÉ

L'auteur passe en revue le traitement des fistules vesicovaginales étendues. Depuis 1932, il a obtenu d'excellents résultats dans une série de cas difficiles, par l'emploi de la technique qu'il préconise. Il est possible même dans les cas les plus difficiles même dans ceux qui selon toute apparence présentent des difficultés techniques insurmountables de reconstruire entièrement les déchirures du vagin. Mais pour obtenir ces heureux résultats, l'emploi d'une technique rigoureuse est essentiel.

Выводы

Автор делает обозрение лечения серьезных случаев фистулы между влагалищем и мочевым пузырем. С 1932 года он оперировал многие случаи, употребляя ту же самую технику с великолепными результатами. Он нашел, что если хирург очен строго применяет определенную технику то возможно успешно возстановить полные прорыва влагалища не только в очен трудных случаях, но даже в таких случая которые представляют повидимому непреодолимое препятствие.

JOSEPH-IGNACE GUILLOTIN (by Dr. Max Thorek)

(Continued from page 287)

ined prospective candidates for admission to the Academy of Medicine, as his signature on the following report on Dr. Bichebois shows. Candidates had to undergo a careful examination of their qualifications, submitting documentary evidence of the date of their birth, a Doctor's certificate, a copy of the thesis submitted for their Doctor's degrees, letters of recommendation from other physicians and proof of proficiency in Latin. The *Report of the Deputies on Professor Augustinus Gervasius Bichebois* (Fig. 2) provides an excellent picture of the methods of admitting candidates to a medical academy in the early 1800's.

REPORT OF THE DEPUTIES ON PROFESSOR AUGUSTINUS GERVASIUS BICHEBOIS

Tuesday, January 23, 1810.

Though one may fear (or rather some of us in our recent meetings seemed to fear) that eventually the group of Titulary Professors in our academy might vanish, nevertheless, gentlemen of the medical arts, it can be expected with the greatest probability that as long as our society stands supported by its statutes, rites and rules this order never will fail, and it can be justly agreed with the poet who exclaims on the Golden Branch, *"If one is picked another will replace him."* That is, while today Dr. Mollet, by his own right, and in accordance with the statutes of the academy, enters the order of the Honorary, another physician applies for his admission to the order of Titular Professors and I, with my illustrious colleagues Professors Guillotin, Bouvier, Caille and Pagés, have been appealed to, to report publicly to you on him.

For that reason Professor Bichebois (Augustinus Gervasius), the man under consideration here, after having applied for admission on the fifth day of October past has furnished us with various documents which are required by our laws and from which the following is disclosed.

1. That he was born in Paris at Saint Street on Wednesday, January 8, and baptized the following day in the Church of the Apostle Saint Paul in the year 1777 after the birth of our Lord.

2. He has presented to us his Doctor's certificat from which it is made certain that he has been proclaimed a medical doctor in the Medical School o Paris, July 31, 1806.

3. We have read with great attention the thesi defended by him in order to achieve the title o Doctor, the French title of which is: *Essai su la Fièvre Scarlatine Considérée dans ses états d Simplicité et de Complications;* in this essay there i nothing that does not emit the flavor of a learned wise and clever physician, which after all you migh be unfamiliar with because here he has presented onl one observation on intermittent fever which could b called "Octivua" since it recurs every eighth day.

4. He has brought to the attention of our rites letters of recommendation on his good morals and hi scientific achievements signed by the doctors: *Andry Boudier, Caille* and by our very illustrious colleagu Lepreux, who so fruitfully enjoys uniting medical ar with fine arts.

5. Finally we have, even though we were convince of his good knowledge of Latin by different fragment of his thesis written in Latin, examined him i accordance with our rites by asking him to explai certain selected sentences of the works of Celsus an certain aphorisms of Hippocrates which were translated from the Greek into Latin. With all this h has far surpassed satisfaction.

To all this it must be added what the gentleme Sollier, Doctor in Surgery, and Gigon, Rector of th House of *La Rochefoucault*, testify as to the dwellin of our candidate in this city of Paris during severa previous years, and as to his practice of medicine fro his doctorate on.

After all this has been presented, gentlemen of th medical profession, there is nothing to hinder ou retirement into closed quarters to elect the candidat Professor Augustinus Gervasius Bichebois into ou ranks.

Dated Paris, January 23, 1810.

Signatures:
Guillotin,
Caille,
Pagés,
Bouvier Dn.

The notes of a meeting of the Academy of Medicine of Paris, under the presidency of Dr. Guillotin, on June 14, 180 (Fig. 3), offer an interesting comparison with procedures of our times. A century and a half of years have not altered the

(C [illegible] page [illegible]

Free Muscle Transplantation in the Restoration of Lips and Cheeks

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THE large losses of facial tissues during wartime require especial attention. When different tissues are destroyed, it is very hard to close the defect. The enormous number of "gueules cassées," due to the wounds of the first World War which have not yet been restored, is an indication of the extent of the failure of plastic surgery in that war.

Tissues ought to be repaired according to their biologic nature whenever possible. In cases in which the loss of substance comprises not only the skin, but e muscles, bones and even mucous membrane of the mouth, it is necessary to restore those elements one by one. This is the only way to obtain a functional result.

The biologic integration of a graft is much easier when it is transplanted in a tissue of the same nature, just as a bone graft is better integrated if it is in contact with the skeleton, while it will be reabsorbed when grafted into the soft tissues. The union of muscle to muscle, following the same principle, is easier than the union of tissues of different origin. Although tissue regeneration is not intensive in the human body, still it exists, and one of its greatest possibilities is in the fusion of identical tissues on a high biologic level, *i.e.*, almost without scar tissue, by the reproduction of the specific cells.

It is very difficult to transplant into the cheeks and lips a skin flap, even though doubled, *i.e.*, covered by epithelial surfaces on both sides, due to the fact that in these circumstances the surgeon must obtain the adhesion of tissues of different nature, as muscle and skin.

In the restoration of an organic wall, the cheek for instance, the most important tissues are in the medial part. They correspond to the muscular layer. Muscle pedicle flaps have been used in reconstructive surgery, but free transplantation of isolated pieces of muscle has never been attempted. Unfortunately, the use of muscle pedicle flaps is contraindicated in all cases of great defects.

METHOD

We use a method that permits free muscle transplantation. It consists of the transplantation of a piece of muscle completely separated from its muscular body and transported through a skin tube. The *sternocleido* and *pectoral major* are the muscles of choice for the face.

This operation has been used in four cases. Three cases involved defects of the angle of the mouth and the cheek, one resulting from noma and two from cancer. The fourth was a case of cancer of the floor of the mouth involving the jaw and the inferior lip. Two cases of the first group have already been reconstructed, both anatomically and functionally, and can be reported now. The other two are in the last stages of restoration.

CONCLUSIONS

Through observation of these cases it has been possible to establish several facts of great importance from the biologic as well as the plastic point of view:

(1) Healing of the muscular skin flap is always by first intention, because the union is made between tissues of the same nature.

(2) After the first stage, when the muscle strip is isolated before its transplantation, it is transformed into a fibrous tissue, but after that transplantation, when it lies close to the healthy muscles of the new region, it recovers its normal aspect, corresponding to a true rehabilitation of the tissue.

(3) After a few months the grafted muscle recovers its function, probably due to nervous penetration from neighboring muscles, and the patient is able to perform every movement, as *whistling* and *spitting,* with real contraction of the grafted muscle.

(4) The histologic picture of the grafted muscle shows that its structure is perfectly normal.

RÉSUMÉ

Les conclusions suivantes sont basées sur quatre cas de transplantations musculaires libres pour la restauration des lèvres et des joues: (1) les lambeaux cutanés-musculaires guérissent toujours par première intention, vu que l'union s'effectue entre tissu de même nature; (2) après le premier stade, quand le lambeau musculaire est isolé avant d'être transplanté, il est transformé en tissu fibreux; mais après la transplantation quand il est en contact avec le tissu musculaire sain de la nouvelle région il reprend son aspect normal correspondant ainsi avec une vraie réhabilitation de tissu; (3) après l'écoulement de plusieurs mois le muscle greffé recouvre ses fonctions. Cela est dû probablement à la pénétration dans le greffon des nerfs des muscles avoisinants; (4) l'examen histologique du muscle greffé revèle une structure tout à fait normale.

SUMARIO

Las conclusiones siguientes, basadas en la experiencia en cuatro casos de transplantación de músculo libre en la reconstrucción de labios y mejillas, fueron deducidas:

(1) La cicatrización de los labios musculocutáneos es siempre por primera intensión porque la unión curativa es entre tejidos de la misma naturaleza.

(2) Después del primer período, cuando el segmento o trozo de músculo es aislado antes de transplantarlo se transforma en tejido fibroso, pero después del transplante, cuando está adjunto al músculo sano en su nueva región, recobra su aspecto normal, y corresponde a una verdadera rehabilitación de los tejidos.

(3) Después de unos pocos meses el músculo transplantado recobra su función probablemente debido a penetración de nervios de músculos vecinos.

(4) El cuadro o imagen histológica del músculo transplantado demuestra que el tejido o estructura es perfectamente normal.

Выводы

Основываясь на четырех случаях свободной мышечной трансплантации для возстановления губ и щек, автор пришел к следующим заключениям:

1. Заживание мышечно-кожеваго лоскута происходит *prima intentione* потому что что связь происходит между тканями одного и того же типа.

2. В первой стадии, до трансплантации, пока мышечный лоскут остается изолированным, он превращается в соединительную ткань. Но после трансплантации, когда он лежит посреди здоровых мышец области, в которыю он был пересажен, он опять принимает нормальный вид, по-закону настоящ [illegible] ене [illegible] ткан

3. Через несколько месяцев пересаженная мышца приобретает свою нормальную функцию, повидимому благодаря проникновению нервных волокон из соседних мышц.

4. Гистологическое изследование показывает, что строение пересаженной мышцы совершенно нормально.

JOSEPH-IGNACE GUILLOTIN (by Dr. Max Thorek)

(Continued from page 311)

modus operandi or the behaviorisms of our colleagues.

Let us, for example, follow the meeting, and in our mind's eye compare it with a meeting as conducted today.

First, there was the opening, with the reading of the minutes, and approval of the same. A paper was then read by Dr. Gastelier, Chief Physician, Military Hospital of Montargis, a preliminary report entitled, "Observations and Reflections Concerning the Present-Day Organization of Medicine." (This thesis accompanied his application for membership in the Academy.) The application was ccepted and was seconded by Guillotin nd two other gentlemen. The Committee, obviously knowing the applicant very well, retired to discuss his eligibility, and he was promptly elected.

Next, a certain Mr. Bouriat, Secretary of the Medical Society, presented a summary of the medical situation in the Department of Indes and Loire. He apparently was a public health physician.

The next order of business was acceptance of a gift from Dr. Desessarty, followed by the reading of a letter by the Secretary from Dr. Antoine Metternich, Professor of Pathology of the Special School of Medicine at Mayenne.

Next, a Dr. Dubois read a paper on the "Use of Milk in Pulmonary Phthisis," which was received by the society with applause, and the committee examined the essayist for membership in the Academy, whereupon the Academy "proceeds to vote," after which the president announces the admission of M. Philibert Dubois as a member.

Dr. Menuret reads the "Metereo-Pathologic Chart" of the three weeks past since the last meeting. The warm dry temperature of the first week became unsettled and disturbed by thunder storms in the second week, and finally humid, cold, and near freezing in the third. "Blood congestions" were frequent during this period, especially in young individuals. The doctor found much "bilious vomiting" and "diarrhea," and toward the end of the period, various cases of "catarrh."

It is noted that a great deal of attention was being paid to barometric changes as related to physical conditions. It is also interesting to note that the type of the disease was often predicated by the changes in weather and geographic locations. Recently Dr. Peterson, a Professor of Pathology at the University of Illinois, has contributed an extensive work on the physiopathologic changes in the body based upon weather conditions.

Dr. Menuret remarked that he had knowledge of some facts which seemed to indicate that the use of a bleaching fluid *(eau de javelle)* produced skin disorders which manifested themselves by itching and the formation of blisters similar to those produced by nettles. Here we have an example of the practice of allergy, although unknown by that name.

During the discussion of details of the autopsy of a fetus, Dr. Legallois took occasion to remark on the absence of blood observed in children who died some time before delivery. In our time

(Continued on page 317)

Editorials

The "Age Limit" Again

"WE must avoid inbreeding in our surgical societies."

A truism, certainly, and no one would dispute it. The trouble is that, like most clichés, it has become almost meaningless through constant reiteration.

Commonly it expresses a sense of impatient irritation that posts of honor are not more quickly open to an ambitious young man who has just stepped over the threshold of the profession. If only the "old men" (meaning those of 50, 60 or 70, according to the age of the complainer) would get out of the way, new blood and new energy could be poured into the veins of this or that society and it would forthwith bound forward with youthful vigor.

Sober commonsense reveals the absurdity of such thinking. The profession of surgery is practiced by men of many stages of maturity and many degrees of skill, and years are by no means a trustworthy measure of either maturity or skill.

To make fullness of years a prerequisite for the assumption of responsibility is deplorable, of course. Plenty of our younger men earn the right to honor before their hair turns gray. We should find better ways of using such men in positions of responsibility and leadership.

But it is even worse to equate fullness of years with senility and to force arbitrarily into retirement men who attain a given number of years of living. That is a strange denial of facts every surgeon knows from his own practice and experience. We all know that old age sometimes swoops down upon a man of forty, rendering him sclerotic of body and set of mind, and sometimes passes over, with inexplicable carelessness, a man of 60 or 70, leaving him sound and hale, with all the vigorous mental power of youth. Titian painted better at 90 than he did at 40, and had he been subject to a "retirement" ruling for artists, the world would have been deprived of some of the greatest masterpieces ever painted. All of us know of instances where great contributions to surgery and medicine have come from men beyond the age which many urge as the limit to usefulness. The present war crisis has put back into harness many medical and surgical men who had, for one reason or another, retired from active practice. The job they are doing should be adequate answer to those who urge that years can alone put a limit to a man's usefulness.

Surgery moves forward with a breathless pace. The heights which surgical knowledge reached in the days of Ambroise Paré look to us, from the new heights we have since attained, like t merest foothills. Much of what seemed the last word in surgical technic in the days of Billroth interests us now merely as an antiquarian curiosity. Most of us who have practiced surgery for ten, or twenty, or thirty years look back to things that were taught us in medical school with a combination of smile and shudder—they were so wrong! One of the essential qualities for a good surgeon must be the flexibility of "mental muscle" to enable him to keep abreast of a profession on the move. But it is well to remember that such flexibility is by no means the unique possession of youth.

Cocky James Primrose was a physician on the make when he set out to demolish the revolutionary ideas of "little Dr. Harvey." He brought to his task a good deal of the vigor of youth. And James Young Simpson, valiant pioneer in the movement toward hospital improvement in his day, was totally unable to open his mind to the discoveries of young Joseph Lister, which were to play so great a rôle in removing the horror from surgery and from hospitals.

As we strive to keep our surgical societies from the so-called evils of "inbreeding," it is well to remember these things. Inbreeding comes—and is bound to come—when control of a surgical society passes into the hands of men seeking security rather than truth, prestige rather than service to humanity. When that happens those in power tend to draw about them men of their own kind until the degeneration of the body is complete. But there will be young men as well as older men in such a group. No easy application of an arbitrary retirement rule can break their stranglehold.

The difficult task we must keep always before our eyes is that of checking within our surgical societies the inbreeding of ideas which have no place there. We can do it only as we learn to utilize fully the capacities of the young men and the middle-aged men and the older men in our ranks, as the army uses both the strength and brawn and resilience of youth and the seasoned wisdom of old campaigners.

Max Thorek

Sulfacetimide in Urinary Tract Infection

THE efficacy of the sulfa drugs as a urinary antiseptic has been demonstrated in the past six years and dangers in their use pointed out. Recently experimentation has been carried out with sulfadiazine and sulfacetimide.

Alyea and Parrish[*] have reported on 152 patients with uncomplicated urinary tract infections treated with these two sulfa drugs. Fifty-one patients were hospitalized and had retrograde ureteropyelograms; 101 patients were believed to have no complications, but pyelograms were not made.

Results of sulfacetimide for *B. coli* and sulfadiazine therapy for *Staphylococcus aureus* gave a 90 per cent cure, often accomplished within twenty-four to forty-eight hours, for the hospitalized group. Similar results were obtained in Group II. Superiority of these drugs is therefore established over sulfanilamide. Cures were obtained in two patients who were sulfathiazole resistant.

Alyea and Parrish recommend low dosage and the forcing of fluids. Three grams of sulfacetimide the first day and two grams a day for seven days thereafter constituted the usual dosage; adults were given 3000 cc. of fluid daily.

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[*] Southern Medical Journal 36:719-723, November, 1943.

The peak blood level following use of this drug occurred in three hours, compared with four hours with sulfadiazine and six hours in the case of sulfapyridine. The average blood level maintained with 2 gm. of sulfacetimide per day was 2.6 mg. per cent. No obstruction of the ureters by sulfacetimide crystals has been reported, as has been the case with sulfadiazine crystals.

Compared with other sulfa preparations sulfacetimide and sulfadiazine have higher therapeutic indices with lower toxicity. They may be given in cases of renal impairment when other sulfa drugs are contraindicated. In Group I (the hospitalized group) of 29 patients given sulfacetimide, two had nausea with slight vomiting and one had a headache. Of 43 outpatients who received sulfacetimide, none reported any toxic manifestations, though it is possible that they may simply have gone unnoticed. The advantage of low dosage is that patients who cannot report for frequent observation may be treated safely.

The most striking feature of the report was that of 72 patients treated with sulfacetimide, 92 per cent were cured and 7 per cent improved. Consequently, sulfacetimide is recommended to both general practitioner and specialist in treating urinary tract infections, because of (1) high rate of cure, (2) low toxicity and (3) efficacy with low dosage.

M. T.

IN MEMORIAM

LEO C. MUNDY, M.D., F.A.C.S., F.I.C.S.

Dr. Leo C. Mundy, recently elected to Fellowship in the International College of Surgeons, died of heart disease at Mercy Hospital in Wilkes-Barre, Pa., on June 11. Dr. Mundy would have been inducted into Fellowship at the Philadelphia Assembly next October. A graduate of the University of Pennsylvania Medical School in 1908, Major Mundy received the Distinguished Service Cross for bravery under fire during World War I. Dr. Mundy has been Senior Surgeon at Mercy Hospital, Wilkes-Barre, since 1920. He was a member of the American Medical Association, American College of Surgeons, Pennsylvania State and County Medical Societies, New York and New England Railway Surgeons and International College of Surgeons. The officers of the International College of Surgeons extend their condolences to the bereaved.

JOSEPH-IGNACE GUILLOTIN (by Dr. Max Thorek)

(Continued from page 314)

this would in all probability be reported as a case of marked hydramnios, complicating pregnancy. The observation of Mr. Vernnes was that turned over to Mr. Legallois, with a request to make a report of this case, adding his own personal observations in similar cases. Here again is a study in pathology which would do credit to a modern pathologist.

The meeting closed with "The agenda being exhausted, the president adjourned the meeting."

Meetings of professional groups have not changed in all the years, as human nature has not changed. It is well to compare this meeting with those of our day, to see whether we have really achieved any changes in our procedures.

(Continued on page 329)

CHAPTER NEWS

MEXICAN CHAPTER

MEXICAN UNIVERSITY MISSION IN COSTA RICA

On the occasion of the inauguration of Teodoro Picado as president of Costa Rica, the outgoing president, Dr. Rafael Angel Calderón Guardia, F.I.C.S. (Hon.), International Vice-President of the International College of Surgeons, National Regent and Honorary President of the Costa Rican Chapter, invited a representative mission from the University of Mexico to be present. The group was composed of Dr. Rudolfo Brito Foucher, Rector of the University, and three members of the Faculty of Medicine: Dr. Gustavo Argil, F.I.C.S. (H.C.), Dr. Manuel A. Manzanilla, F.I.C.S. (Hon.), and Dr. Gonzalo Castañeda, F.I.C.S. (Hon.).

The Mexican mission was greeted at the airport of San José by personal representatives of President Calderón Guardia, Roberto Córdoba, Mexican Ambassador to Costa Rica, Dr. Solón Núñez, Minister of Public Health, Dr. José J. Jiménez Núñez, Rector of the University of Costa Rica, and members of the university medical faculty and Costa Rican Chapter of the International College of Surgeons.

Following the inaugural ceremony, the mission was received by the University of Costa Rica in special session, presided over by Dr. Carlos Sáenz Herrera. Lectures were given by the visiting Mexican mission as follows: "Pathogenesis of Arterial Hypertension," Dr. Gustavo Argil, F.I.C.S. (H.C.); "Surgical Therapeutics of Arterial Hypertension," Dr. Manuel A. Manzanilla, F.I.C.S. (Hon.); "The Acute Abdomen," Dr. Gonzalo Castañeda, F.I.C.S. (Hon.); and "Tumors of the Prostate," by Dr. Manuel E. Pesqueira. The title of Honorary Member was conferred on the visiting Mexican physicians by the College of Physicians and Surgeons.

Sabana Air Port, San José de Costa Rica. From left to right: Dr. Manuel A. Manzanilla, F.I.C.S. (Hon.), Vice-President of the International College of Surgeons; Dr. Gonzalo Castañeda, F.I.C.S. (Hon.), President of the Mexican Chapter; Col. Federico Amaya, Military Attaché of the Mexican Embassy; Dr. Rodulfo Brito Foucher, Rector of the National University of Mexico; Dr. Gustavo Argil, F.I.C.S. (H.C.), Director of the Faculty of Medicine of Mexico.

A banquet was tendered the visiting Mexican colleagues by Dr. Calderón Guardia at his estate, San Rafael. The mission was tendered a reception by Dr. Antonio Peña Chavarria, Director of San Juan de Dios Hospital.

The Mexican University Mission in Costa Rica may be considered an outstanding success from the standpoint of the fine relationship between the Costa Rican Government, the National University of Mexico and the International College of Surgeons.

DR. ALFONSO ORTIZ TIRADO HONORED

DR. ALFONSO ORTIZ TIRADO, F.I.C.S., Special Regent in Orthopedic Surgery of the Mexican Chapter, International College of Surgeons, recently received the Medal of Civic Merit from the Honorary Advisory Council of the City of Mexico and the Federal District, which was awarded him in a ceremony which took place in the *Salón de Cabildos* of the Palace of the Department of the Federal District. Following the conferring of the medal by the Chief of the Department of the Federal District, Javier Rojo Gómez, addresses were given by Dr. Gonzalo Castañeda, F.I.C.S. (Hon.), President of the Mexican Chapter of the International College of Surgeons, and Francisco Doria Paz, Secretary of the Consulting Service.

UNITED STATES CHAPTER

MEETING OF DISTRICT 4

ON May 10 District 4 of the United States Chapter of the International College of Surgeons met in Roanoke, Va. Sight-seeing tours of the city and surrounding country preceded operative clinics at Shenandoah Hospital, followed by luncheon. An informal reception was given in the late afternoon at the home of Dr. T. J. Hughes.

In the evening an informal dinner session was held at the Hotel Roanoke under the sponsorship of the Staff of Shenandoah Hospital and Dr. T. J. Hughes, District Regent of the United States Chapter of the International College of Surgeons. The dinner was followed by a scientific program consisting of addresses by Dr. Herbert Acuff, Chief Surgeon of St. Mary's General Hospital, Knoxville, Tenn., Dr. Benjamin I. Golden, Chief Surgeon of the Davis Memorial Hospital, Elkins, W. Va., and Dr. Rudolph Jaeger, Chief of the Department of Neurosurgery at Jefferson Hospital, Pa. Dr. Acuff spoke on "Cancer of the Colon," stressing the point that

Some of the members of the International College of Surgeons at the meeting of [illegible] May 10. Left to right: Dr. Yates Palmer; Dr. B. I. Golden; [illegible] Dr. Rudolph Jaeger. (*Reproduced through the [illegible]* knowledge of the anatomy of the colon and of the blood supply is of paramount importance in lowering the death rate of surgical procedure. Dr. Golden's subject was "Modern Tendency toward Simplified Treatment of Fractures." By means of transparencies, the use of multiple fixation pins, self-aligning splint and the technic used in the insertion of pins were illustrated. The scientific program was concluded by Dr. Jaeger's illuminating address on "Intervertebral Disc Injury with Herniated Fragments (Its Relationship to Sciatic Neuritis)." Dr. Jaeger described types and locations of injuries, diagnoses and surgical treatment and technic of the condition. Slides and motion pictures clarified the surgical technics used. The meeting was well attended.

A tour through the Veterans' Facility the next morning, followed by a luncheon at the Shenandoah Hospital and a round table discussion concluded the meeting.

REGIONAL DISTRICTS OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS AND THEIR REGENTS

THE United States Chapter of the International College of Surgeons has recently designated the following districts and regents:

District 1. *New England States.* Regent: Dr. James A. Gettings, 209 Whalley Ave., New Haven, Conn.

District 2. *New York.* Regent: Dr. Chester A. Peake, 1854 Bedford Ave., Brooklyn, N. Y.

District 3. *Pennsylvania, New Jersey.* Regent: Dr. Watson B. Morris, 193 Morris Ave., Springfield, N. J.

District 4. *District of Columbia, Maryland, North Carolina, Virginia, West Virginia.* Regent: Dr. Thomas J. Hughes, Shenandoah Life Bldg., Roanoke, Va.

District 5. *Alabama, Florida, Georgia, South Carolina.* Regent: Dr. Gilbert F. Douglas, 1111 S. 20th St., Birmingham, Ala.

District 6. *Tennessee, Kentucky.* Regent: Dr. Herbert Acuff, 402 Medical Arts Bldg., Knoxville, Tenn.

District 7. *Michigan, Ohio.* Dr. Clark D. Brooks, 113 Martin Place, Detroit 1, Mich.

District 8. *Indiana.* Regent: Dr. Thomas B. Noble, Jr., 23 E. Ohio St., Indianapolis, Ind.

District 9. *Illinois.* Regent: Dr. Alfred A. Strauss, 104 S. Michigan Ave., Chicago, Ill.

District 10. *Wisconsin.* Regent: Dr. William J. Carson, 425 E. Wisconsin Ave., Milwaukee, Wis.

District 11. *Arkansas, Louisiana, Mississippi.* Regent: Dr. Theodore J. Dimitry, 4325 St. Charles Ave., New Orleans, La.

District 12. *Missouri, Iowa.* Regent: Dr. Edward V. Mastin, 3720 Washington Blvd., St. Louis, Mo.

District 13. *North Dakota, South Dakota, Minnesota.* Regent: Dr. Olaf J. Hagen, 807 Broadway, Fargo, N. D.

District 14. *Nebraska.* Regent: Dr. Charles L. Hustead, 116 W. 16th St., Falls City, Neb.

District 15. *Kansas, Oklahoma.* Regent: Dr. Andre B. Carney, 915 S. Cincinnati, Tulsa, Okla.

District 16. *Texas.* Regent: Dr. Henry H. Ogilvie, 205 Camden St., San Antonio, Tex.

District 17. *Colorado, New Mexico.* Regent: Dr. William T. H. Baker, 702 N. Main St., Pueblo, Colo.

District 18. *Wyoming, Utah.* Regent: Dr. W. Andrew Buntin, Boyd Bldg., Cheyenne, Wyo.

District 19. *Montana, Idaho.* Regent: Dr. James C. MacGregor, 401 Medical Arts Bldg., Great Falls, Mont.

District 20. *Oregon, Washington.* Regent: Not designated.

District 21. *California, Arizona, Nevada.* Regent: Dr. Felix Cunha, 450 Sutter St., San Francisco, Calif.

Some of the visitors to the General Secretary during the recent A.M.A. meeting in Chicago. Standing, right to left: Mr. Henry Stratton; Dr. T. C. Routley, Secretary of the Canadian Medical Association; Col. [illegible] Corbusier; Dr. Harvey Agnew, Secretary of the Canadian Hospital Association; Dr. Fred H. Douglass, Chairman of the Board of Governors of the United States Chapter of the International College of Surgeons; Dr. [illegible] De Muth, Local Canadian Regent; Dr. Leigh F. Watson, Los Angeles, Calif.; Mr. [illegible]; Dr. J. Rudolph Jung, Terre Haute, Indiana; Dr. Simon Reisler, Indianapolis, Indiana; Major [illegible]; seated, left to right: Miss Margaret Sink, R.N.; Dr. Max Thorek; Mrs. Otto De Muth; Miss [illegible], R N.; Mrs. Leigh Watson; Mrs. Redewell; Miss Ruth Warner, G. D.; Mrs. Helen [illegible]

NINTH NATIONAL ASSEMBLY

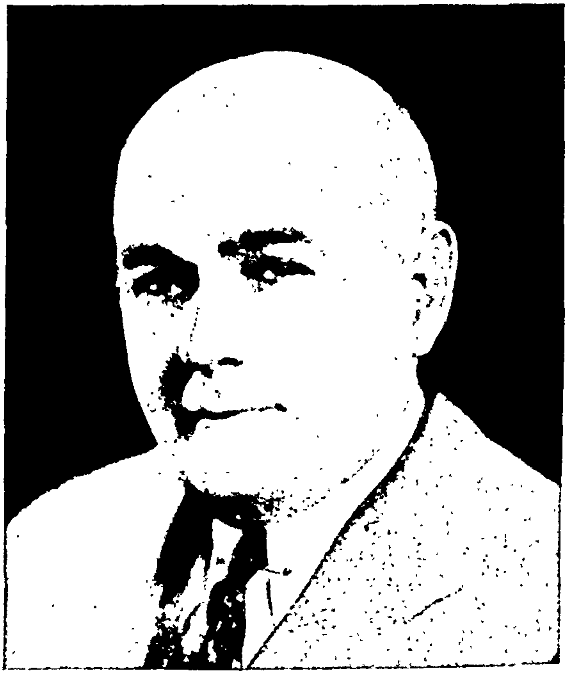
UNITED STATES CHAPTER

INTERNATIONAL COLLEGE OF SURGEONS

BENJAMIN FRANKLIN HOTEL, PHILADELPHIA, PA.

OCTOBER 3-4-5, 1944

Dr. Desiderio Román, President of the International College of Surgeons



Dr. Thomas A. Shallow, President U. S. Chapter

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Dr. William Bates, Chm.
Dr. E. L. Eliason
Dr. Drury Hinton
Dr. Thomas A. Shallow
Dr. Desiderio Román
Exhibit Committee
Dr. John R. Moore, Chm.
Dr. Desiderio A. Román
Dr. C. L. Jackson, Jr.
Dr. Maxwell F. White, (U. S. N.)
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Dr. Thomas L. Doyle
Dr. Earl P. Craig
Dr. Elmer Hess
Dr. Rudolph Jaeger
Dr. John R. Moore

PROGRAM

TUESDAY, OCTOBER 3, 1944

REGISTRATION 8:00-10:00 A.M.
VISITING EXHIBITS

MORNING

Pres. Thomas A. Shallow, presiding

10:00 A.M. Hon. Bernard Samuel
Mayor of the City of Philadelphia
Address of Welcome

10:20 A.M. Dr. Rufus S. Reeves
Director of the Department of Public Health
City of Philadelphia
Address of Welcome

10:40 A.M. Dr. Charles L. Brown
President of the Philadelphia County Medical Society
Address of Welcome

11:00 A.M. Dr. Hubley R. Owen
President of the Philadelphia Academy of Surgery
Address of Welcome

11:20 A.M. Dr. Desiderio Román
President of the International College of Surgeons
Address of Welcome

11:30 A.M. Dr. Thomas A. Shallow
President, United States Chapter of the International College of Surgeons
Address of Welcome

11:40 A.M. Dr. Leonard Averett
Philadelphia, Pa.
"Supravaginal Hysterectomy—Its Indications and Advantages."
(Motion pictures of technic)

LUNCHEON—VISITING EXHIBITS

AFTERNOON

Drs. Drury Hinton and Benjamin Golden, presiding

2:00 P.M. Dr. George Morris Piersol
University of Pennsylvania, Philadelphia
"Rehabilitation"

2:20 P.M. Miss Helen S. Willard
Director of the Philadelphia School of Occupational Therapy
"Occupational Therapy in Rehabilitation"
(Visitors are cordially invited to visit the School and Workshops, 419 S. 19th St., Philadelphia, Pa., any day from 9:00-5:00)

2:40 P.M. Dr. Harvey E. Billig, Jr.
Los Angeles, Calif.
"Muscle Reinervation" — Illustrated by motion pictures

3:20-3:40 P.M. Visit to Exhibits

3:40 P.M. Dr. Frances I. Seymour
New York, New York
"The Responsibility of the Surgeon in the Preservation of Human Fertility"

4:00 P.M. Dr. Roy W. Mohler
Philadelphia, Pa.
"An Analysis of the Indications, Results and Dangers of Complete and Supravaginal Hysterectomy"

4:20 P.M. Dr. Clifford B. Lull
Philadelphia, Pa.
"Caudal Analgesia"

4:40 P.M. Dr. Karl [illegible]
Milwaukee,
"Pentothal
Major [illegible]

EVENING—SERVICE NIGHT

Pres. Thomas A. Shallow, presiding

8:00 P.M. Dr. Charles M. Griffith
Medical Director—U. S. Veterans Administration, Washington, D.C.
"The Rehabilitation of Ex-Members of the Armed Forces by the Veterans Administration"

Dr. J. Rudolph Jaeger, President-elect United States Chapter

8:20 P.M. Capt. Howard H. Montgomery (M.C.), U.S.N., Chief of Division of Rehabilitation, Navy Dept., Washington, D. C.
"Rehabilitation in the Navy"

8:40 P.M. Major General George G. Lull, M.C., U.S.A.
Deputy Surgeon General of the Army
Address—Title to be announced.

9:00 P.M. Vice Admiral Ross T. McIntire, M.C., U.S.N.
The Surgeon-General of the Navy
Address—Title to be announced.

WEDNESDAY, OCTOBER 4, 1944

MORNING

Drs. Fred Douglass and Rudolph Jaeger, presiding

9:00 A.M. Dr. Richard H. Lawler
Attending Surgeon Cook Co. Hospital
Chicago, Ill.
"Gastric Surgery"

9:20 A.M. Dr. Max Thorek
Professor of Surgery, Cook County Graduate School of Medicine, Chicago, Ill.
"History and Practical Application of Tubovalvular Gastrostomy" (Motion Picture in Color)

Dr. William Bates, First Vice-president United States Chapter

9:40 A.M. Dr. Moses Behrend
Philadelphia, Pa.
"Ulcerative Leiomyoma of the Stomach"

10:00 A.M. Dr. Asher Winkelstein
Chief, Gastro-Intestinal Clinic,

Mt. Sinai Hospital, New York, New York
"The Relation of Gastric Acidity to Recurrent Ulcers after Partial Gastrectomy"

10:20-10:40 A.M. Visit to Exhibits

10:40 A.M. Dr. John Royal Moore
University of Pennsylvania, Philadelphia
"Massive Bone Defects"

11:00 A.M. Dr. Custis Lee Hall
Vice-President, International College of Surgeons, Washington, D. C.
"Osteotomy for the Treatment of Ununited Fractures of the Femoral Neck"

11:20 A.M. Dr. Austin T. Moore
Columbia, S. C.
"Fractures of the Hip Joint—Treatment with Adjustable Nails or Blade Plate Fixation"

11:40 A.M. Dr. Roger Anderson
Seattle, Wash.
Paper—Title to be announced.

LUNCHEON–VISITING EXHIBITS

AFTERNOON

Drs. Custis Lee Hall and Max Thorek, presiding

2:00 P.M. Drs. Harry E. Bacon, Orville C. Gass and William D. Todhunter
University of Pennsylvania, Philadelphia
"Cancer of the Rectum and Pelvic Colon with Special Reference to the Preoperative and Postoperative Treatment"

2:20 P.M. Dr. William Seaman Bainbridge
New York, N. Y.
"A Survey of Surgical Results in Cancer"

2:40 P.M. Dr. Albert A. Berg
Consulting Surgeon, Mt. Sinai Hospital, New York, N. Y.
"The Preservation of the Sphinter Ani in Radical Operation for Cancer of the Rectum"

3:00 P.M. Dr. Thomas A. Shallow
President, United States Chapter, International College of Surgeons
"Radical Treatment of Carcinoma of the Esophagus"

3:20-3:40 P.M. Visit to Exhibits

3:40 P.M. Dr. Benjamin I. Golden
Director, Golden Clinic, Elkins, West Virginia
"Massive Single Doses of the Sulfa Drugs"

4:00 P.M. Dr. William A. Lell
Philadelphia, Pa.
"Observations on the Bronchoscopic Insufflation of the Sulphonamids into the Tracheobronchial Tree"

4:20 P.M. Dr. Lyman Weeks Crossman
Prof. Clinical Surgery, New York Medical College, New York, N. Y.
"Refrigeration for the Preservation of Traumatized Tissue"

4:40 P.M. Dr. Frederick M. Allen
New York Polyclinic Medical School and Hospital, New York City, New York
"Surgical Shock and Its Treatment"

EVENING

Pres. Thomas A. Shallow, Pres. Desiderio Roman and Pres. Rudolph Jaeger, presiding

8:00 P.M. CONVOCATION—Ball Room, Benjamin Franklin Hotel
All details to be obtained from Dr. Ernest F. Purcell—Chairman, Trenton, N. J.
Convocation Address:—
Dr. Morris Fishbein
"The Organization of American Medicine"

THURSDAY, OCTOBER 5, 1944

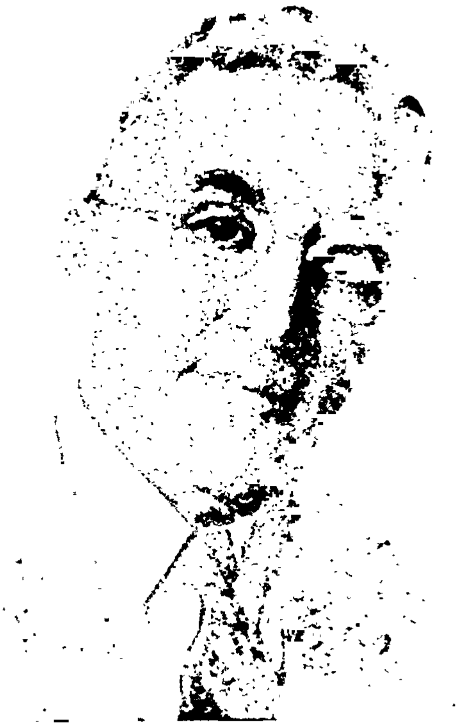
MORNING

Drs. Morris Weinstein and Charles P. Bailey, presiding

9:00 A.M. Dr. Elias D. Lawrence
Adjunct Surgeon, Barnet Hospital, Paterson, [illegible]
"Saphenous [illegible]

9:20 A.M. Dr. Edmund B. Spaeth
Philadelphia, Pa.
"Aneurysm of Circle of Willis from an Ophthalmological Standpoint"

9:40 A.M. Dr. Samuel R. Skillern
Philadelphia, Pa.
"The Frontal Sinuses as the Pathway of Infection to the Cranium and Its Contents"



Dr. Moses Behrend, Chairman of the Board of Medical Examiners.

10:00 A.M. Dr. B. R. Dysart
Pasadena, California
"Diabetic Gangrene Involving the Sinuses"

10:20-10:40 A.M. Visit to Exhibits

10:40 A.M. Dr. Nicholas Michels
Philadelphia, Pa.
"Variations in the Arterial Blood Supply of the Liver, Gall-Bladder, Stomach, Duodenum and Pancreas" (Based upon 100 dissections)

11:00 A.M. Dr. Robert Lich, Jr.
Pittsburgh, Pa.
Dr. Ralph B. Samson
Pittsburgh, Pa.
"A Method of Inguinal Herniorrhaphy"

11:20 A.M. Dr. Thomas B. Noble, Jr.
Indianapolis, Ind.
"The Surgical Control of Obstructive Adhesions of the Small Bowel"

11:40 A.M. Dr. O. DeMuth, M.C., M.D., C.M., F.I.C.S.
Vancouver, B. C.
"Recent Developments of Biliary Surgery"

AFTERNOON

Drs. William Martin and Moses Behrend, presiding

2:00 P.M. Dr. Oswald Swinney Lowsley
Honorary Consultant to the Medical Corps of the Navy
"Plastic Operations upon the Kidneys"

2:20 P.M. Dr. Elmer Hess
Erie, Pa.
"The Indications and Technic for Transplanting the Ureters into the Sigmoid"

2:40 P.M. Dr. John E. Cannaday
Charleston, West Virginia
"The Custis (Derma) Graft Transplant" (Illustrated by slides and motion pictures)

3:00 P.M. Dr. Desiderio Román
Philadelphia, Pa.
"Lingual Goiter"

EVENING

Assembly Dinner, 7:30 P.M.
Pres. Rudolph Jaeger, presiding

Program, entertainment and speaker to be arranged by Dr. John E. Loftus.

ROUND TABLE DISCUSSIONS

TUESDAY, OCTOBER 3, 1944

10:40-12 M. Col. J. B. Brown
E. N. and T. Round Tables

10:40-12 M. Drs. Grant, Jaeger, Fay, Scott and Klemme
"Neurosurgery"

2:00-3:20 P.M. Dr. Moses Behrend
Philadelphia, Pa.
"Duodenectomy and Partial Pancreatectomy"

2:00-3:20 P.M. Dr. Charles Mazer
"Endocrinology"

3:40-5:00 P.M. Dr. Edward T. Crossan presiding
Philadelphia, Pa.
"Fracture Problems"

WEDNESDAY, OCTOBER 4, 1944

9:00-10:20 A.M. Dr. Harold A. Zintel
Philadelphia, Pa.
"Evaluation of the Status of Local Sulfa Therapy Especially in the Peritoneum"

10:40-12 M. Dr. Harrison F. Flippin
Philadelphia, Pa.
"Penicillin"

2:00-3:20 P.M. Dr. Henry S. Ruth, Philadelphia, Pa., and Panel, Drs. Dripps, Haugen, Woodbridge and Donald Hale
"Pre- and Postoperative Teamwork between Anesthetist and Surgeon"

2:00-3:20 P.M. Dr. Charles A. Behney
"Carcinoma of the Uterus"

3:40-5:00 P.M. Dr. William G. Leaman
Philadelphia, Pa.
"Delayed Deaths from Anesthetic Difficulties"

THURSDAY, OCTOBER 5, 1944

9:00-10:20 A.M. Surg.-Dr. C. A. Steiner,
Drexel Hill, Pa.
Med. Dr. Samuel Lisker
Philadelphia, Pa.
Dr. Smithwick
Boston
"Peripheral Vascular Disease"

10:40-12 M. Dr. Thomas W. Cook
Allentown Pa.
Dr. Austin T. Moore
Columbia, S. Carolina
Dr. Theodore Franklin Bach
Philadelphia, Pa.
"Backache not Due to Disc Difficulties"

10:40-12 M. Dr. Douglas MacFarlan
Philadelphia, Pa.
"Speech and Speech Hearing"

2:00-3:20 P.M. Surgeon supplied by Capt. C. M. Schaar
Representative Naval Hospital
Med.-Dr. Jos. T. Beardwood, Jr.
Philadelphia, Pa.
"Amputation Trends—Traumatic, Diabetic"

2:00-3:20 P.M. Dr. Norman R. Ingraham
Philadelphia, Pa.
"Venereal Disease"

3:40-5:00 P.M. Dr. Truman G. Schnabel
Philadelphia, Pa.
"The Ever-present Postoperative Respiratory Complications"

MOTION PICTURES

(Independence Room, Mezzanine Floor)

Tuesday, Wednesday, and Thursday

9:30 A.M. Dr. Fred H. Albee
New York City

a. Reconstruction Operation for Ruptured Crucial Ligament
b. H-Graft for Fracture of the Patella
c. Arthrodesis of the Knee with Bone-Graft Peg
d. Arthroplasty of the Knee

10:10 A.M. Dr. Harry Bacon
Philadelphia, Pa.

a. Cancer of the Rectum without Colostomy and Preservation of Sphincter Muscles
b. Technic of Transplantation of Colostomy

11:10 A.M. Dr. Frank H. Bachr
Springfield,

Abdomino-Perineal
the Rectum and

11:30 A.M. Dr. Moses Behrend
Philadelphia, Pa.

a. Disease of the Spleen
b. Thoracoplasty
c. Hernia

12:15 P.M. Dr. Elmer J. Ball
Los Angeles, Calif.

Thyroglossal Duct Cyst Removal

12:15 P.M. Dr. H. I. Biegelheisen
Sclerotherapy

1:30 P.M. Dr. Morton I. Berson
New York City

a. Split-Skin Grafts for Burns
b. Cartilage Transplants for Facial and Skull Depressions

2:10 P.M. Dr. Lyman Crossman
Red Bank, N. J.

a. Refrigeration Anesthesia
b. Amputations and Preservations

2:40 P.M. Dr. Matthew S. Ersner
Philadelphia, Pa.

Rhinoplasty

3:20 P.M. Dr. Leonard Frescoln
Philadelphia, Pa.

A Case of Rabies

3:40 P.M. Dr. Elmer Hess, Erie, Pa.

a. Removal of Ovarian Cyst and Pelvic Kidney
b. Transplantation of the Ureter to the Skin
c. Calculous Heminephrectomy
d. Resection of Upper Pole of Double Kidney
e. Secondary Nephrectomy for Calculous Pynephrosis

(Lafayette Room. Mezzanine Floor)

Tuesday, Wednesday, and Thursday

9:30 A.M. Dr. J. Rudolph Jaeger
Philadelphia, Pa.

Craniocerebral Injuries

11:00 A.M. Dr. Bernard G. Judovich
Philadelphia, Pa.
Dr. William Bates, Philadelphia, Pa.

Segmental Neuralgia

12:10 P.M. Dr. Maxwell Maltz
New York City

Case of Superficial Wounds of the F

1:30 P.M. Dr. Albert Metcalf, Denver

Diagnosis and Medical Treatment of I eral Vascular Disease

2:10 P.M. Dr. G. I. Miller, Brooklyn,

Multiple Bar Skin Clips

2:30 P.M. Dr. Albert Seltzer
Philadelphia, Pa.

Nasoplastic

3:15 P.M. Dr. Max Simon
Poughkeepsie, N. Y.

Recurrent Laryngeal Nerve in Tl Surgery

3:50 P.M. American Red Cross Blood I
Philadelphia, Pa.
Life Line—Army Medical

SCIENTIFIC EXHIBITS

Dr. William Bates
Dr. Bernard Judovich
Philadelphia, Pa.

"Painful Syndromes."

Dr. J. E. Thomson
Lincoln, Nebraska

"Experimental and Clinical Observ on Problem of 'Local Shock.'"

Dr. M. M. Simon
Poughkeepsie, N. Y.

"Thyroid Surgery demonstrating a triangle for the localization of recu laryngeal nerve on the basis of new marks."

Dr. Lyman W. Crossman
Red Bank, N. J.

"Refrigeration for Preservation of ' matic Tissues."

Dr. Rudolph Jaeger
Philadelphia, Pa.

"Intervertebral Disk Injury."

Dr. Harry E. Bacon
Philadelphia, Pa.

"Surgical Treatment of Cancer of the tum without Colostomy and with Pres tion of the Sphincter Muscles."

Dr. L. E. McCrea
Philadelphia, Pa.
"Cystoscopic Photography."

Dr. Matthew S. Ersner
Philadelphia, Pa.
"Rhinoplasty."

Dr. Frederick V. Emmert
St. Louis, Mo.
"Vaginal Hysterectomy."

Dr. R. M. Klemme
St. Louis, Mo.
"Neurosurgery."

Dr. O. F. Lamson
Seattle, Washington
"Appliance for colostomy control."

Dr. T. B. Noble, Jr.
Indianapolis, Ind.
"Treatment of Peritonitis."

The American Red Cross

The Blood Donor Service
Philadelphia, Pa.
Dr. Albert P. Seltzer
Philadelphia, Pa.
"Nasal Operation."

Dr. H. I. Biegeleisen
New York, N. Y.
"Sclerotherapy."

Dr. John J. Moorhead
New York, N. Y.
"The Foreign Body Finder—The Berman Locator."

Dr. Francis I. Seymour
New York, N. Y.
"The Surgeon in Post War Rehabilitation and Artificial Insemination."

Dr. C. W. Gilfillan
A. E. Gallant
K. Townsend
Los Angeles, Calif.
"The Surgical Treatment of Fractures and Allied Conditions in Which Some Form of Internal Fixation Is Utilized."

Dr. Chevalier L. Jackson, Jr.
Dr. Charles M. Morris
Philadelphia, Pa.
"Applied Anatomy of the Bronchi and Lungs."

Dr. Robert A. Hingson
Dr. Waldo B. Edwards
Dr. James Southworth
U. S. Marine Hospital, Staten Island, N. Y.
Philadelphia Lying-In Hospital
"Continuous Caudal Analgesia in Obstetrics Surgery and Therapeutics."

The Philadelphia School of Occupational Therapy, Miss Helen S. Willard, Director
The Curative Workshop—Clare S. Spackman, Director.

JOSEPH-IGNACE GUILLOTIN (by Dr. Max Thorek)

(Continued from page 317)

Academy of Medicine,
Presidency of Mr. Guillotin,
Session of June 14, 1808.

The meeting opened with the reading of the minutes of the previous session. The proceedings were approved.

Dr. Gastelier, chief physician of the Civil and Military Hospital of Montargis . . . submitted to the Academy a preliminary report on the subject: "Observations and Reflections Concerning the Present-Day Organization of Medicine." This is a thesis accompanying his application as a corresponding member of the society.

Dr. Gastelier's contribution is cordially accepted and his petition for membership seconded by Messrs. Guillotin, Daignan and Ledru. A committee composed of Messrs. Desessarty, Gedillot and Delongchamp is appointed to evaluate the application.

Mr. Bouriat, secretary of the medical society of . . . submits through Mr. Desessarty Nos. 20, 21, 22, 23 and 24 of his summary of the medical situation as observed in the Department of Indes and Loire.

The Academy gratefully accepts from Mr. Desessarty the gift and requests of him an abstract of this interesting study which is to be deposited in the archives of the society as was done heretofore.

The secretary read a letter of Mr. Antoine Metternich, Professor of Pathology at the Special School of Medicine at Mayenne, in which he acknowledges the receipt of the Annals of the Academy and promises to send a paper in the course of the current year.

Mr. Dubois, introduced as a titular member of the academy, read a paper on "The Use of Milk in Pulmonary Ptisis." [illegible] received [illegible]
society's [illegible]
draws.

Mr. Bourru, [illegible]
pointed to [illegible]

Technical Exhibits

NINTH ANNUAL ASSEMBLY
of the
UNITED STATES CHAPTER
of the
INTERNATIONAL COLLEGE OF SURGEONS
(On the Mezzanine Floor in the
Washington, Franklin and Betsy Ross Rooms)
BENJAMIN FRANKLIN HOTEL
PHILADELPHIA, PA., OCTOBER 3, 4, 5, 1944

The latest in pharmaceuticals, surgical apparatus and instruments, medical books and products of special interest to surgeons will be on display.

Members and visitors are urged to study these exhibits during recess periods, which will be arranged at frequent and appropriate intervals.

Following are the names of the firms exhibiting and descriptive items, arranged in alphabetical order.

THE ALKALOL COMPANY

Taunton, Mass.
Booth 10

Showing Alkalol, claimed by the manufacturer to be a carefully balanced alkaline saline solution. It is aqueous, containing no glycerine and only a trace of alcohol, dissolving mucus, bland, nontoxic, nonirritating. It is suggested for mucous membranes and irritated tissues and is a comforting, effective wet dressing used postoperatively.

Also Irrigol, an alkaline, saline, slightly astringent powder, readily dissolved in water, and recommended as a safe, cleansing vaginal douche, etc. In charge: W. J. Ford and E. W. LeClair.

AMERICAN SAFETY RAZOR CORPORATION

Brooklyn, N. Y.
Booth 45

A.S.R. Surgeon's Blades are known for their uniformity of performance, high quality and never deviating keenness. Visit their booth where their representative, Miss M. Stewart, R. N., will be pleased to show a full assortment of A.S.R. Surgeon's Blades, available in 9 different sizes to fit all standard surgical handles. Full information may be obtained about these precision-made surgical instruments.

AMERICAN HOSPITAL SUPPLY CORPORATION

Chicago, Ill.
Booth 13

Baxter Intravenous Solutions and blood, plasma and serum equipment will be a feature of the American Hospital Supply Corporation booth. Solutions in the famous Baxter Vacoliters will be displayed, along with such transfusion equipment as Transfuso-Vacs, Plasma-Vacs, and Centri-Vacs. Trained staff members will be in attendance to explain and answer questions on all phases of the Baxter intravenous technic.

Also on display will be many specialty items of importance to better hospital routine and service.

AMERICAN STERILIZER COMPANY

(Comper Division)
Erie, Penna.
Booths 42-44

Demonstration [illegible] a live model will be given on the Albee-Comper Orthopedic and Fracture Table designed by Dr. Fred H. Albee of New York. Adapted to the needs of wartime procedure, this table has wide use under wartime conditions.

Optional accessories which include Skeletal Traction, Goldthwaite Irons, Ryerson Autojack, Scoliosis Yoke, and the L'Episcopo Head and Shoulder Rest will be demonstrated during the meeting, and maximum operative efficiency of the Albee-Comper Orthopedic Table, obtained with a minimum of surgical time and fatigue, will be shown.

Also on display is the Comper Orthopedic Walker.

In charge: Messrs. Howard M. Fish, Adrian Comper, E. O. Lindberg, Fred G. Bauschard.

AUSTENAL LABORATORIES, INC.

New York
Booth 14

Showing Vitallium Surgical Appliances—Vitallium, the "friendly alloy" compatible with bone and tissue. Bloodvessel and Bileduct Tubes, Skull Plates, Caps for Hip, Elbow and Finger Arthroplasty, Plates, Screws and Nails for fracture fixation, Lag Screws, Hip Nails, Arthrodesis Pins, Orbital and Testicular Implants, Jaw Fracture Fixation Appliances, and Reconstructive Appliances will be shown. An exhibition skeleton with numerous Vitallium appliances in place will be provided for anatomic discussions.

VITALLIUM is a homogeneous alloy that is corrosion resistant and is completely inert *in vivo*. It does not irritate tissues nor interfere with normal bone regeneration. It is strong, tough, light in weight, and Vitallium plates can be bent to conform to bone contours. Vitallium Surgical Appliances are x-ray inspected. Vitallium is composed of cobalt, chromium and molybdenum and contains no iron or nickel and is therefore *not* a stainless steel. Vitallium has been used for dental prostheses for twelve years and for surgical prostheses for seven years.

BARD-PARKER COMPANY, INC.

Danbury, Conn.
Booth 3

The following products will be exhibited: Rib-Back Surgical Blades, Long Knife Handles for deep surgery, Renewable Edge Scissors, Formaldehyde Germicide and Instrument Containers, Transfer Forceps, Hematological Case for obtaining bedside blood samples.

ERNST BISCHOFF COMPANY, INC.

Ivoryton, Connecticut
Booth 9

Will display the following: Lobelin-Bischoff, respiratory stimulant; Diatussin, antispasmodic; Anayodin, effective amebicide; Aquinone-Bischoff and Aquakay-Bischoff. The latter are new preparations. Aquinone is the first aqueous solution of menadione to be offered to the medical profession and Aquakay is menadione in tablet form. Both of these preparations are highly effective in Vitamin K therapy. Aquakay-Bischoff does not require the administration of bile salts.

BREWER & COMPANY

Worcester, Mass.
Booth 4

Brewer & Company will feature their Ampuls and pharmaceutical specialties of particular interest to the surgeons attending the Ninth National Assembly. Those attending the assembly are cordially invited to visit the Brewer booth.

CAMERON HEARTOMETER COMPANY

Chicago, Illinois
Booth 18

The Cameron Heartometer Co. is showing the improved Heartometer, a scientific precision instrument for accurately recording systolic and diastolic blood pressures. It also furnishes a permanent graphic record of the pulse rate, the various functions of the heart, the myocardial response, as well as the functioning of the valves. The Heartometer stages and is of great value in checking the progress of medication and treatments.

CAMERON SURGICAL SPECIALTY COMPANY

Chicago, Ill.—New York, N. Y.
Booth 30

The Cameron Surgical Specialty Company will show the new [illegible] the new Cavicamer [illegible] ,astroscopes and cystos [illegible] Photo-Microlite and I [illegible] the Omniangle [illegible]

CANADIUM RADIUM & URANIUM CORPORATION

New York
Booth 5

A new therapeutic approach in the treatment of certain refractory conditions of a chronic nature not related to abnormal growth with Alpha-Ray Therapy by external use of Radon in fatty carriers may open a new field in the treatment of radiation injuries, certain peripheral vascular con- [illegible] icose ulcers, some derma- [illegible] Alexander Pregel, H. B. [illegible] Frank Hartman.

CARBISULPHOIL COMPANY

Dallas, Texas
Booth 16

Foille treatment for burns and wounds both in the regular emulsion type and in the new ointment-consistency form will be displayed. Also on exhibit will be Tarcreme, a modern coal-tar preparation, odorless, non staining and in an absorption base.

The company states that Foille yearly continues undiminished progress in medical acceptance and usage, being widely employed throughout the Nation by principal industrial surgeons, and substantially serves service surgeons as well as civilian doctors. Represented by A. V. Hurd and Albert S. Shugert.

CIBA PHARMACEUTICAL PRODUCTS, INC.

Summit, N. J.
Booth 1

Visitors are cordially invited to our exhibit, where a representative will answer questions regarding Ciba specialties, and discuss in detail those particularly applicable to the fields of surgery—*CORAMINE*, circulatory and respiratory stimulant; *NUPERCAINE*, local anesthetic of prolonged action; and *TRASENTINE*, effective antispasmodic.

DAVIS & GECK, INC.

Brooklyn, N. Y.
Booth 46

Davis & Geck, Inc., will display its complete line of sterile sutures including fine gauge (0000 and 00000) catgut; a comprehensive group of sutures armed with swaged-on Atraumatic needles designed for specific surgical procedures; Dermalon skin and tension sutures (processed from nylon) which, because of marked physical advantages and economy, are rapidly replacing silk-worm gut and other nonabsorbable materials.

A representative from the laboratories will be in attendance at the booth and copies of the "Manual of Surgical Sutures and Ligatures" and other interesting booklets will be available. In charge: J. Cameron Stuart.

THE DENVER CHEMICAL MFG. CO.

New York
Booth 8

The company will exhibit Galatest, a dry reagent for the instantaneous detection of urine sugar. It is claimed to be accurate, simple, speedy and economical, and is used routinely by many leading hospitals and medical departments of industrial plants, and by more and more private practitioners every day. Acetone Test (Denco), dry reagent for the instantaneous detection of acetone in urine will also be demonstrated.

J. H. EMERSON COMPANY

Cambridge, Mass.
Booth 15

Resuscitation and hospital equipment. Represented by William H. Stephenson.

ETHICON SUTURE LABORATORIES

(Division Johnson and Johnson)
New Brunswick, N. J.
Booth 12

TANTALU [illegible] Surgical sutures made of the [illegible] own to surgeons who visit th [illegible] exhibit. Other new special [illegible] aged needles, include those for eye, nerve and gastro-intestinal surgery, as well as stay sutures and nylon and silk in fine gauges. Of special interest to urologists, gynecologists and orthopedic surgeons, as well as to general surgeons, will be the tubes of sterile fascia lata in strips and in sheets.

GUDEBROD BROS. SILK CO., INC.

Philadelphia, Pa.
Booth 31

[illegible] nonabsorb- [illegible] k Sutures. [illegible] d braided [illegible] ary type in [illegible] Champion [illegible] da and in [illegible] ylon fiber. [illegible] r celluloid [illegible] on suture. [illegible] s, braided, [illegible]

JOURNAL OF INTERNATIONAL COLLEGE OF SURGEONS

Chicago, Ill.
Booth B
(Gallery Passageway)

The *Journal of the International College of Surgeons* will be distributed at our booth. Information regarding exhibits may be secured here. Our visiting surgeons are invited to leave their cards if they wish to have the *Journal* or information concerning the *Journal* mailed to them.

LEA & FEBIGER

Philadelphia, Pa.
Booth B
(Gallery Passageway)

Lea and Febiger will exhibit among their new works Babcock's "Principles and Practice of Surgery," Donaldson's "Surgical Disorders of the Chest," Kovacs' "Manual of Physical Therapy" and Lewin on "Backache and Sciatica." New editions will be shown of Spaeth's "Ophthalmic Surgery," Rowe's "Elimination Diets and the Patient's Allergies," Simmons and Gentzkow's "Laboratory Methods of the United States Army," Bell's "Pathology," Rhinehart's "Roentgenographic Technique," Craig and Faust's "Clinical Parasitology," Kraines' "Therapy of the Neuroses and Psychoses," Gray's Anatomy, Ballenger on The Nose, Throat and Ear, Ballenger's "Manual," Boyd's "Textbook of Pathology," Ormsby and Montgomery on "Diseases of the Skin," Portis on "Diseases of the Digestive System" and other important works.

LEDERLE LABORATORIES, INC.

New York
Booth 17

The Lederle Laboratories, Inc., are showing various products of value and interest in the field of Surgery: Sulfadiazine Surgical Powder, Sulfadiazine for Topical Application in its various forms and Sulfadiazine in the new dimension, "Diazifilm," as well as Diethylstilbestrol, Heparin, Hemostatic Globulin. Physician members of the Lederle staff and medical representatives will be in attendance to answer inquiries and distribute literature. The Lederle Exhibit will be under the direct supervision of Mr. J. F. Hanifan in charge of the Philadelphia office.

J. B. LIPPINCOTT COMPANY

Philadelphia, Pa.
Booth C
(Gallery Passageway)

Showing the complete list of LIPPINCOTT SELECTED PROFESSIONAL BOOKS . . . featuring Thorek: MODERN SURGICAL TECHNIC . . . available in both the three-volume and one-volume War Edition . . . and Thorek: SURGICAL ERRORS AND SAFEGUARDS. Featured also two new books of significant surgical interest: Bunnell: SURGERY OF THE HAND and Bancroft-Murray: SURGICAL TREATMENT OF THE MOTOR SKELETAL SYSTEM. Other new titles include the American Edition of Fry: THE DENTAL TREATMENT OF MAXILLO-FACIAL INJURIES, Brown-McDowell: SKIN GRAFTING OF BURNS, Heuer: TREATMENT OF PEPTIC ULCER, Simmons-Wayne: GLOBAL EPIDEMIOLOGY, together with many other new books and new editions of old favorites . . . and, of course, the ever-new LIPPINCOTT JOURNALS.

LYDIA O'LEARY, INC.

New York, N. Y.
Booth 11

The Lydia O'Leary Covermark exhibit will show the professional use of this preparation for concealing the discoloration of postoperative scars, as well as permanent or temporary skin blemishes. Application of Covermark will be demonstrated in our booth, and literature and professional samples will be available. Miss Lydia O'Leary in charge.

MEAD JOHNSON & COMPANY

Evansville, Indiana
Booth 33

Amigen is an enzymic hydrolysate of casein and pancreas consisting of amino acids and simple peptides. It supplies all the amino acids required for growth and the repair of body tissue. Because it is nonantigenic, it may be administered orally, subcutaneously, or intravenously. It is indicated wherever food protein cannot or should not be eaten or when it cannot be adequately digested or when the protein intake is insufficient. When given in adequate amounts, Amigen prevents wastage of body protein and builds up new [illegible].

Amigen is supplied as a powder [illegible] 5 per cent or [illegible] per cent [illegible]. One liter of the 5 per cent solution [illegible] the equivalent of 50 grams protein, 50 grams dextrose, 5 grams sodium chloride and [illegible].

MEDICAL FILM GUILD

New York
Booths 39-40

Medical Film Guild emphasizes its talking papers in this year's program of "MEDICAL FILMS THAT TEACH." Hospital and Medical Society program chairmen, now faced with depleted staffs because of the war emergency, who desire educational material for their meetings, find that Medical Film Guild's motion picture film textbooks answer that important problem. Through grants for post-graduate instructions, these films are available at no charge to any hospital or medical society meeting and to the medical services connected with the Armed Forces of the United States. Exhibition is also included at no charge under this plan. Subjects available are: Inguinal Hernioplasty; Asphyxia Neonatorum; Nonoperative Treatment of Paranasal Sinusitis; Otitis Media in Pediatrics; A Clinic on Acute Mastoiditis; Otoscopy in the Inflammations; A Clinic on Sigmoid Sinus Thrombosis; A Clinic on Petrositis with Meningitis; Amebiasis and Its Treatment; A Clinic on Otitic Purulencies; Pharmacology of Respiratory Stimulants.

W. B. SAUNDERS COMPANY

Philadelphia, Pa.
Booth A
(Gallery Passageway)

This publishing house will exhibit their complete line of books. Included among the new and important books to be shown are: Bockus' three-volume work on "Gastroenterology," Fifth Edition of Christopher's "Minor Surgery," Erich & Austin's "Traumatic Injuries of Facial Bones," Hoffman's "Female Endocrinology," Moll's "Aesculapius in Latin America," Orr's one-volume "Operations in General Surgery," Pullen's "Medical Diagnosis," the Twentieth Edition of the "Illustrated Medical Dictionary," new Third Edition of Stokes' "American Syphilology," Lundy's "Anesthesia," Wharton's "Gynecology and Female Urology," the Military Medical and Surgical Manuals, Official U. S. Public Health Service Industrial Hygiene Manual, Stieglitz' "Geriatrics," Weiss & English's "Psychosomatic Medicine," and many others.

SCHERING CORPORATION

Bloomfield, N. J.
Booth 32

Schering Corporation, in line with their policy of bringing out the latest in endocrine research, is featuring the new estrogenic product—ESTINYL Tablets.

ESTINYL, a derivative of the natural hormone alpha-estradiol, is most economical and is orally effective in dosage of .02 and .05 mg. It produces very little nausea and toxic side effects.

Other Schering preparations on display will be ORETON-F Pellets, ORETON, ORETON-M Tablets, PROGYNON-B, PRANONE, PROLUTON and CORTATE, and the diagnostic products for X-Ray—NEO-IOPAX and PRIODAX.

SHARP & DOHME

Philadelphia, Pa.
Booths 34-35

Sharp & Dohme will exhibit their new sulfonamide, Sulfamerazine, and also Sulfasuxidine, LYOVAC Normal Human Plasma, Tyrothricin Concentrate for human use and LYOVAC Tetanus Antitoxin, Bovine. Capable, well-informed representatives will be on hand to welcome all visitors and furnish information on Sharp & Dohme products.

J. R. SIEBRANDT MFG. COMPANY

Kansas City, Mo.
Booth 7

The new Clayton Transfixion Splints are now offered to the medical profession by Siebrandt. These splints are the results of years of experimental research and development in collaboration with Dr. Charles F. Clayton of Fort Worth, Texas. In the past seven years he has used this method of external fixation successfully in over 500 cases for both open and closed reductions. They have many advantages over other type transfixion splints. Built of plastic, transparent to x-ray—simple in construction and extremely light in weight and have no complicated mechanism to adjust; they eliminate plaster cast and reduce cost and time of treatment. The exhibit will also include a complete line of bone instruments and fracture equipment, including the [illegible] Director for [illegible] and the Goodwin Bone Clamp, which simplies the technic for open reduction when wiring long bone fractures

SINGER SEWING MACHINE COMPANY
(Surgical Stitching Instrument Division)

New York, N. Y.
Booths 41-42

Specially trained demonstrators will exhibit the new Singer Surgical Stitching Instrument This instrument, developed in close cooperation with the surgical profession, has attracted much attention in several recent medical conventions, and clinical trials have demonstrated its success and practicability.

All surgeons, nurses and hospital staff members are invited to see this unique contribution to surgery

Motion pictures of operations showing the instrument in use will be shown, and free literature describing the instrument in detail will be available Represented at this Assembly by Mr. J P. Weis, Mr L C. Molloy and demonstrators

THE TECHNICON COMPANY

New York
Booths 21-22

The Technicon Company will display two instruments of unique interest . . . the AUTOTECHNICON and the TECHNISCOPE.

The Autotechnicon is a machine for automatically processing and staining tissues in preparation for pathologic diagnosis Remarkable reductions in the time heretofore required for microscopies make obsolete previous hand methods When it is used for this work, the surgeon may expect a pathologic diagnosis routinely within twenty-four hours

The Techniscope is a device for the magnification projection of the microscopic image of slides and similar material for simultaneous direct study by as many as ten observers . . . The projected image may also be cast upon a screen with full detail, achieving great magnifications The spectacular performance of the Techniscope is due not only to a brilliantly designed optical system, but also to the employment of a very high intensity light source, a pressure mercury-vapor lamp which delivers a beam of lumens higher than any other projection lamp yet devised. Under such efficient cooling conditions, the slides or microscope are not harmfully effected. Such magnifications as are projected through the oil-immersion lens of the microscope come out clearly and intensely. Provision is also made on the machine for the incorporation of a camera for lantern slides or Kodachrome transparencies.

Both machines . . the Autotechnicon and the Techniscope will be in actual operation at all times during the meeting

THE TOWER COMPANY, INC.

Seattle, Washington
Booths 2-47

The Tower Company, Inc., is demonstrating its new Roger Anderson Fracture Machine This Machine attracted great interest on its first showing at the recent American Medical Association Meeting in Chicago Every recognized orthopedic procedure can be accomplished on this Machine. It is outstanding for its simplicity of operation, ease of maneuverability, compactness and completeness. Also on display is the 1944 model of the Self-Aligning Fracture Reduction Splint, a new model Clavicle Splint, a Bedside Portable Fracture Reducing Splint, complete line of skeletal fixation equipment for fractures of the mandible and other facial bones, Hip-Nailing equipment, the Charles Bradford Cassette Holder and many other items of real interest to the surgeon treating fractures

WHITE LABORATORIES, INC.

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Complete information regarding White's Sulfathiazole Gum —one of the latest developments in the field of oropharyngeal chemotherapy

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Review of the latest clinical reports on the results of the use of White's Vitamin A and D Ointment in the treatment of burns, abrasions and indolent ulcers.

WYETH INCORPORATED
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Philadelphia, Pa.
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Up to-the-minute information on *Infant Feeding and Nutritional Biochemicals* can be obtained at the S M A Corporation exhibit. Of particular interest to most physicians is the new protected Vitamin A product *Caritol*

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(John Wyeth & Brother Division)

Philadelphia, Pa.
Booth 37

You are cordially invited to visit the Wyeth exhibit where Bepron, Amphojel, Phosphajel, Kaomagma, Silver Picrate, B Plex and other pharmaceutical specialties will be featured.

WYETH INCORPORATED
(Reichel Division, Biologicals)

Philadelphia, Pa.
Booth 38

You are invited to visit the Biological Division exhibit where representatives will be pleased to explain the uses of the Wyeth Allergenic Diagnostic Equipment.

ZIMMER MANUFACTURING CO.

Warsaw, Indiana
Booths 19-20

Zimmer Manufacturing Co. will exhibit a full line of splints and bone instruments. The Corbett Finger and Thumb Splints will be featured among the new items on display Complete demonstrations of the Zimmer Reduction-Retention Apparatus will be given upon request, and pictures showing the results of its use will be on display. The new Stryker Screw Driver will be of special interest to surgeons who are partial to bone plating operations

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JOSEPH-IGNACE GUILLOTIN (by Dr. Max Thorek)

(Continued from page 329)

recommends his admission to membership in the Academy. Having heard the report, the Academy proceeds to vote, after which the president announces the admission of Mr. Philibert Dubois as Titular Member of the Academy.

Mr. Menuret reads the Metereo-Pathological chart of the three weeks passed since the last meeting. The warm, dry and unchanged temperature of the first week became unsettled and disturbed by the thunderstorms in the second, and finally humid cold and near freezing in the third.

The blood congestion in the anatomic regions were frequent, especially in young individuals. Eruptions not having the characteristics of measles, biliary vomiting and diarrheas of the same type signalized the first peculiarities of that particular period, and toward the end of that time various catarrhal diseases and, above all, acute rheumatisms were noted.

Mr. Menuret remarked that he had knowledge of some facts which seem to indicate that garments bleached with bleaching liquid (*Eau de Javelle*) produce skin irritations which manifest themselves by itching and the formation of blisters similar to those produced by nettle.

The secretary read an observation communicated to the Academy by Dr. Vernnes, Surgeon of the Civil and Military Hospital of Niorto, and one of his collaborators, concerning a laborious a [illegible] tchemen

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BOOK REVIEWS

Report by the Minister of Health and the Secretary of State for Scotland on a National Health Service. Presented to Parliament by Command of His Majesty. Macmillan Co., London, 1944.

IT is the intention of the government to organize all phases of public and individual health on a national scale for the whole population, comparable in scope and organization to such public services as Water Supply and Highways. This is in accordance with, and a part of, the total Social Security program described in the White Paper or the Beveridge Plan. The Paper is of great interest to medical men the world over, indicating the pattern for complete socialization of the medical services, as the initial step toward radical social changes of the postwar period, which will undoubtedly affect many countries, particularly those highly industrialized.

The Paper outlines a comprehensive plan providing for the organization and integration of all health services, facilities, equipment and personnel, for contractual allocation of medical practice, and for the location of additional health centers to serve communities needing health facilities in which all phases of medical care are provided for. It provides for the absorption of existing services administered under local authorities with necessary changes in organization and administration, also for a high degree of central control over general practice. The practitioner would be limited as to the number of patients he might treat, the area in which he might practice, the consultant and the hospital he might choose for his patient. He would receive compensation from the government through his contractual agency, the Central Medical Board. It also provides for participation under contract by the existing private hospitals and consultant services under government-stipulated conditions, identical with those of the Public Hospital system.

It is admittedly a political form of organization resting on the "principle of public responsibility," declaring that "Decisions on policy must lie with elected representatives answerable to the people."

While the Plan speaks of joint authority, central and local organization and administration, in effect, the central authority, the Minister of Health, initiates, decides and dictates; assuming all the authority and responsibility of the service, detailing the execution and administration to local government units. It allows local government authorities to plan for their areas, to make recommendations and to consult with the central authority. The latter decides. It allows medical experts to recommend, assist, give technical guidance, expert opinion and be responsible to the central authority.

The Report represents as its purpose the establishment of this comprehensive health program on a voluntary basis. Since the program includes all services and is paid for by taxation on a basis of total [illegible] of every individual, the voluntary phase of the plan [illegible] totally submerged. The individual [illegible] will pay for it nevertheless. The physician or specialist will be forced into this system for lack of private facilities and private patients. Private facilities and practice will be starved through the scarcity of patients willing to pay for such services in addition to their share of taxes, and thus will be forced out or into the national health organization. At most, private medical practice will be limited to such physicians whose patients can afford to write off their personal contribution in taxes for the health service as a philanthropy.

From the point of view of the physician, the paper offers no desirable program of organization or operation.

From the point of view of the average citizen a free medical service administered on the basis of a public utility such as the Highways, would be tempting. Travel on such Highway is sure to be rough but it would serve him in fair weather or foul—he would get there somehow.

From the point of view of the State, the Paper does not accomplish what it sets out to do. It accepts the premises of voluntary participation, personal and family doctor relationship with freedom of choice and proceeds to nullify them. It sets out to give the best and produces the mediocre. The Plan also has great possibilities for favoritism and corruption. There is no doubt but what the political setup would serve well those in power.

SIMON REISLER.

Emergency Surgery. Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London, Eng., Ed. 5. 969 pp., 1039 figs. John Wright & Sons, Ltd., Bristol, 1943.

UP until some years ago, the *Emergency Surgery* of Lejars was considered the final authority on the subject. This reviewer believes that there is no better successor to that classic work than Bailey's *Emergency Surgery*, which now appears in its Fifth Edition.

The multiplicity of hardships with which this edition was beset is remarkable. No one but an author can appreciate the discouragement of having his labors of over twenty years destroyed by bombs. That is what happened to the basic materials composing Bailey's first four editions. To add greater complication to an already distressful situation, when this Fifth Edition was nearing completion, the bombs fell again. Fortunately, the illustrations were saved, although the original blocks had to be remade and the type reset.

But these almost insurmountable difficulties only hardened and stimulated Bailey to greater achievement. Consequently, this Fifth Edition is a magnificent contribution to contemporary surgical literature, and brightly outshines the last edition, which was in itself an excellent work. Comparing the Fifth Edition with its predecessor, one finds many chapters completely revised, and many augmented, rearranged and embellished.

The opus comprises 76 chapters, each one replete with instructive, up-to-date and impressive material. The work is conspicuous by the absence of padding.

The illustrations are a joy to the eye and have high didactic value. Particularly are the colored plates praiseworthy. This is especially true in the chapters on strangulated hernia, intestinal obstruction, etc. In thumbing through, for example, the chapter on appendicitis, one finds a wealth of material encompassed in pages 90-114 inclusive. This chapter should be read and reread, and read again, and he who is beginning the practice of medicine should memorize every word. Besides, one will easily retain in his memory the beautiful colored illustrations (pp. 104-105-107) depicting the details of removing an appendix. Such illustrations embellish the text throughout.

Bailey obviously is one of the broad and sympathetic individuals who gives credit where credit is due. At the end of each chapter are bibliographic references and citations of much value.

To analyze the various chapters would lead us too far afield. This reviewer finds difficulty in pointing out the scintillating highlights, for the entire text is illuminating. Suffice it to say that this work, which has penetrated by its own merits the various paths leading to the abode of the surgeon, will continue to do so in an augmented manner.

Chapter 67 (The Eye and the Orbit), is contributed by Eugene Wolff, while Chapter 70, dealing with conditions of the nose, naso-pharynx, and nasal sinuses, is the work of Eric Watson-Williams. They are excellent.

The book is concluded with an appendix which embodies the latest contributions to the surgical entities discussed.

This reviewer cannot resist citing at least one example of the fertility and brilliance of Bailey's pen. On page 921, an excellent paragraph on cardiac massage describes vividly a visit to a patient with "blue asphyxia," in whom all signs of life had ceased, and who was restored by cardiac massage continued for some seconds. Cardiac arrest in this case was at least 12 minutes or longer. The style of presentation is vivid and impressive here and keeps the reader fascinated. Thus, throughout the text is free from the dry, tiring quality so often encountered in technical writings.

The work concludes with a glossary of anatomic terms. This reviewer regrets that anatomists have seen fit to expunge the names of the masters of anatomy in the new nomenclature. Such names as Douglas, Poupart, Gimbernat, Cooper, Winslow, Stensen, Retzius, Zuckerkandl, Vater, Hunter, Scarpa, and others—all masters of the past—who contributed so much to our art and science are forgotten and other ("modern") terms deliberately substituted. This reviewer is fully acquainted with the whys and wherefores set forth by the originators of this change, but he still maintains that the luster of the laurels of the time-honored *"palmam qui meruit fereat"* should be kept untarnished.

The index is as complete and thorough as the text is excellent. The binding and printing are of high caliber. No student, surgeon or general practitioner can afford to be without this book.

MAX THOREK.

Intracranial Arterial Aneurysms. Walter E. Dandy, Adjunct Professor of Surgery in the Johns Hopkins University. 147 pp., 55 figs., tables A to G. $2.50. Comstock Publishing Co., Ithaca, New York, 1944.

THIS book gives the author's findings in 108 patients suffering from aneurysms within the cranial cavity disclosed at operation, necropsy or both. He emphasizes the generally accepted theory that most of these lesions are congenital malformations and therefore occur at any age and are apt to show up in early life. The inclusion of a chapter by Dorcas Hager Padget on the Embryology and Anatomy of the Circle of Willis describing the variations in the arrangement of the arterial tree to the brain adds greatly to the understanding of the hazards of the surgical cure of intracranial aneurysms. Dandy warns against total ligation of the internal carotid artery without first testing the patient's tolerance to closure by manual occlusion of the vessel in the neck for a period of 10 minutes. He recommends this test preoperatively in all lesions about the sella in order to know what the patient's reaction will be should an aneurysm unexpectedly be exposed. Where complete ligation is impossible, he advises partial closure by a facial band, which slowly produces a complete occlusion and at the same time permits an adequate collateral circulation to develop. When complete ligation is permissible the carotid artery is ligated in the neck and beyond the aneurysm intracranially, preferably doing the intracranial ligation first. In sacculated aneurysms it is sometimes possible to clip its neck and remove the sac. The author's experience indicates that these lesions are particularly amenable to cure by surgery with a relatively low mortality. The well-read neurologist or surgeon will surely digest every detail in this instructive book by the world's foremost neurologic surgeon.

RUDOLPH JAEGER.

Surgery of Modern Warfare. In six parts. Edited by Hamilton Bailey. Part V, pp. 717-896, 115 illus. E. & S. Livingstone, Edinburgh, 1944. *(For review of Parts I and II, see the March-April issue; for review of Parts III and IV, see the May-June issue.)*

A DISCUSSION on injuries of the brain and skull concludes the Section on Wounds of the Head and Neck. Section XVI on Otorhinolaryngology in Relation to War Injuries contains much pertinent information on injuries to the ear, air passages and air sinuses, wounds of the orbit and non-perforating and perforating wounds of the eyeball. An excellent section on Wounds of the Trunk includes such topics as "Wounds of the Thorax," "The Evolution of the Abdominal Surgery of War," "Laparotomy for War Wounds," "Intraabdominal Procedures, Including Wounds of the Small Intestine and Mesentery," "Wounds of the Stomach, Duodenum, Liver and Spleen." First-aid and operative treatment of head wounds, complications and how to meet them, dressings, nursing and general management are thoroughly described. It is brought out that expediting collection of the wounded and accurate first aid will lower the mortality rate in chest wounds. Use of magnetism in removal of foreign bodies from th [illegible] is given much space, and the eff [illegible] gas [illegible] per ai passages noted. Part V [illegible] bl [illegible] to preceding volumes of [illegible]

(Continued from page 333)

which he was called to terminate, and which was caused by the extraordinary size of the fetus resulting from an effusion of water in the abdomen of the fetus.

During the discussion of the details of the autopsy of the fetus, Dr. Legallois took occasion to remark on the absence of blood observed in children who died some time before delivery.

The observation of Mr. Vernnes was turned over to Mr. Legallois with a request to make a report on this case, adding his own and personal observations in similar cases.

The agenda being exhausted, the President adjourned the meeting.

Signed: Guillotin, President.
M.A. . . . (Signature),
Secretary.

Guillotin's life was an active existence replete with excitement, harassments and problems peculiar to the period in which he lived. He was a champion of scientific advancement, an investigator and a true Aesculapian.

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Rehabilitation, or the Salvaging of Manpower*

FRED H. ALBEE, M.D., F.A.C.S., F.I.C.S.
NEW YORK, NEW YORK

MANPOWER today is the crying need of all Nations—first to win the war, and then to win the peace. And when I say "crying" I speak advisedly. We all know what devices Hitler is using to augment his dwindling supply of manpower. We all know, too, what a manpower shortage our own national wartime needs are disclosing, and what a high rate of rejectees we are finding among our youth.

Yet for all of us, despite the degree or the cause of our need, there is increasingly, as the war goes on, one common answer to our manpower problem, and that answer is *rehabilitation* of rejectees, those physically handicapped by injury or disease, or both, in training and in combat.

In all our countries, there is a staggering total of unused manpower hours latent in the physically unfit of today, who can be made physically fit for tomorrow; in those thousands of highly trained, highly skilled men, victims of war and of circumstances, who, once incapacitated, can be salvaged and put *back and back* into war and vital industrial pursuits, and finally, when the war is over, into self-supporting readjusted lives.

All signs point to the fact that World War II will be finally won, not by the nations or groups of nations possessing the most planes, ships, tanks and guns to start with, but by the nation or group of nations which expends and salvages its manpower in the most intelligent fashion—both to make these planes, ships, tanks and guns, and then to man them in successful action.

Certain types of manpower are always more expendable than others. The youth who fulfills his greatest wartime destiny in the peeling of potatoes is not as vital a candidate for salvage—from the point of view of national salvation—as the youth who, as one of the cream of the national health crop, was chosen to be trained as a Flying Fortress pilot, at a national expense of approximately $75,000, and who, despite a foot cut off by a Jap propeller, while he floated down in his parachute, still possesses the vital requisites for doing his job well—perfect hearing and sight, and heart, lungs and physical stamina adequate to prevent "blacking out" during sharp turns at great speed, in addition to expert skill gained during his months and months of training.

One of the sad truisms of war, unlike the situation in industrial accidents, is that the ablest men are the ones who most often get hurt. The leaders of men, those with daring, courage and all the desirable qualities of fighters, are most frequently on the casualty lists. Their followers and the others have a much lower incidence of injury.

And, naturally, for the sake of future eugenics, if not for the needs of immediate survival, the leaders of our nation must be salvaged to their fullest possible extent, and as often as such salvage can react to their own or the Nation's good.

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* Presented at the Fourth International Assembly of the International College of Surgeons, held in New York, June, 1943.

Of course, in a sense, we surgeons are rehabilitating every day of our lives. Whenever we operate or give any kind of a treatment, we are performing a kind of human salvage but, I wish to emphasize, not completing it. And this has always been true since the very beginning of surgery. Formal and complete rehabilitation, in the international meaning and acceptance of the word as it is used today, dates from World War I when the number of the injured focused the attention of the world on the need for such rehabilitation—and the progress in surgery itself provided the first step toward making such human salvage possible.

All this was discussed at the Inter-allied Congress on Rehabilitation which met at Rome, Italy, in the summer of 1919 *after* the Armistice, and from which we all returned to our respective countries, as I am sure we will go out from this Congress, wiser and better equipped for our work in human salvage.

As a representative of the Armed Forces of this country, I returned from this Congress to the State of New Jersey, where already the groundwork for the amazing record in rehabilitation it has since achieved had been well laid, both by the work at the United States General Hospital No. 3 at Colonia, New Jersey, and by the passage of the first of all the civilian rehabilitation laws in this country on April 10, 1919, the New Jersey Rehabilitation Law. This law, which was largely premised on our accomplishments at the United States General Hospital No. 3, authorized the New Jersey Rehabilitation Commission to *physically* and/or vocationally rehabilitate the State's adult crippled citizens to the end that they might attain self-support, and by so doing laid the foundations for the newest development in rehabilitation, the salvage of the rejected Selective Service draftee. It is remarkable to state that while this Assembly of the International College of Surgeons has been going on, with a symposium on Rehabilitation, the Congress at Washington has passed a generous epoch-making law to furnish rehabilitation in conjunction with the states to the rejectees, the returned wounded soldier or to the physically handicapped civilians.

At the United States General Hospital No. 3, where as Chief Surgeon I was in charge of the rehabilitation of thousands of wounded veterans from the last War, I had the opportunity of both seeing—and often initiating—the actual working of rehabilitation in its many phases.

United States General Hospital No. 3 was for much of its existence classified as one of the two amputation centers of the Army and the methods we instituted there illustrate very well a complete rehabilitation program as a special type of case. Even prior to its official classification as an amputation center, General Hospital No. 3 had been receiving a generous allotment of amputation cases. Most of these patients arrived with open stump wounds, badly infected, which after being sterilized by the Carrel-Dakin wound treatment method, required reamputation or plastic operations on the stump. In many instances, patients were received with the stump healed and large scars present with protruding bone, in which cases excision of the scar with bone and plastic closures were necessary.

The whole process of rehabilitation was especially well illustrated by this class of case. The morale of these "buddies" needed first attention in many cases, and, therefore, every effort to engage their interest and stimulate their courage was desirable, even before they were out of bed. Following physiotherapy treatment to mobilize their stumps, and particularly the nearest joint to the stump, or to overcome any contracture, vocational therapy was given while in bed and afterwards. It was found to be far and away the most effective morale and physical builder. Vocational therapy merged later into vocational education in the extensive artificial limb manufacture which was one of the important units of the hospital. The men were taught everything about the manufacture of their own artificial limbs, the fitting and use, as well as walking exercises in the gymnasium and dancing.

It was surprising how well amputees danced with attractive dancing partners. The examples of these boys (to all types of cases) showing what they could do after the loss of their legs even above the knees had a most beneficial effect upon the morale of the whole hospital. Two amputees of unusual ability and mental poise whom I was able to have inducted into the Army from civil life, were also of great aid in building morale; one who had lost both arms above the elbows would hold his cue between his upper arm stumps and beat any boy in the camp at billiards. The other fellow had lost one arm above the elbow, and the other below the elbow; nevertheless, he had invented artificial hands activated by straps over the shoulders with which he could do almost anything, even to threading needles.

The special training thus acquired might lead directly to a gainful occupation, or it might be the first step to some other trade of more complicated character.

Of course there were many other types of injury which found their way to this hospital, as for instance, pathologic and traumatic conditions of the spine and cases of nerve injury, including many with loss of substance. But the majority of the cases involved injuries of the extremities, either previous amputations or injuries from shrapnel or high explosives. An exceptionally large number of cases of gun-shot wounds with extensive loss of bone which had been either shot away or removed at an earlier operation were, by general orders, sent to this hospital.

But, whatever the disability, the first step in the veteran's rehabilitation was the repair of his body, the putting of him in the best possible physical condition. This was viewed as much more than a mere surgical process—or a surgical follow-up treatment process. Almost as soon as the patient came out of the ether and his temperature was normal, some form of physiotherapy or occupational therapy was instituted. To an ex-mechanic this might mean the making of toys out of empty typewriter spools, a discarded shaving cream tube and the exercise of his ingenuity. To a youth with an artistic bent, this might mean the arousing of his interest in drawing or painting. If his war disability was of a nature to necessitate a change of occupation, even as early as this, his taste for drawing might be trained into the new career of draftsman by the simple expedient of fastening the drawing board to his bed at right angles to his body and permitting an ambulatory buddy who himself was an expert draftsman in civilian life to pass on his art and knowledge.

In cases where contractures had to be worked out, the handling of paint brushes, the shaping of pottery, the working of a telegraph instrument all served the double purpose of providing a new skill as well as an effective means of occupational therapy.

Once the patient was able to get up and about, he went to the Curative Workshop, where further phases of his occupational therapy or education were instituted, and not only was his work aptitude and capability judged, but he himself became reconciled to the limitations of his new physical condition—under circumstances [illegible] sery well as commen [illegible] conducive to [illegible] each individual's own personal tragedy.

And, of course, in all this work the primary aim—aside from morale preservation—was the building of a bridge back to civilian life via a retrained old skill or a newly acquired skill—in many cases, a higher skill than that possessed by the veteran in his pre-war days.

All kinds of classroom learning were also given at United States General Hospital No. 3. In order to make some of the veterans employable, even the three "R's" had to be taught—as well as courses of college grade for those who elected to improve their enforced leisure with higher learning, and were equipped to profit from them. Many of the veterans who desperately needed a course in rudimentary English considered it much too "sissy" to be taken seriously until their instructor, who had also lost a leg in France, had the wisdom and "guts" to have his artificial leg fitted right in class. The way he stood the pain, which many sitting before him understood only too well, from their own experience, had very definite repercussions on their own futures. Out of the newly awakened admiration for their teacher, they really began to learn English.

In view of the great benefits to be derived from occupational therapy, one of the manpower shortages which rehabilitation *per se* cannot do much about, is the shortage of trained occupational therapists. It is sad to relate that today only three colleges in the country give courses in occupational therapy, and the demand, even before the conclusion of World War II, is so far in excess of the supply that it may become tragic.

The public at large is just waking up to the fact that rehabilitation is not something academic and remote, but something highly personal and practical which may touch either themselves or some one very close to them. When this awakening becomes sufficiently widespread to demand increased facilities and governmental organization for rehabilitation, the much-to-be-desired Siamese-twin relationship between rehabilitation and manpower will become a working reality. And until that day comes, it cannot.

Many are already familar with the work of the Rehabilitation Commission of New Jersey, which for the past twenty-five years, ever since its conception, has been rehabilitating civilians and veterans alike on the principle that physical rehabilitation should come first; educational rehabilitation, which in many instances is found unnecessary after the physical rehabilitation has been completed should come second. And, last of all, should come the best possible job the rehabilitant can hold.

From that long peacetime interlude of experience, we have learned many things—all of which are now being put at the disposal of the wounded of World War II, as well as the rejected draftees and the injured civilian. I say "we have learned," because I have had the privilege of being Chairman of the New Jersey Rehabilitation Commission ever since its first meeting. And high on the list of things learned is the fact that while every rehabilitation candidate is a case apart, a law unto himself, there are certain factors which militate for or against successful rehabilitation in all cases.

The first of these is the patient's own desire to coöperate. Without this, the best attempts at rehabilitation will fail. With coöperation, even seeming miracles are possible.

Coöperation, of course, is obviously the first requirement in the salvaging of the rejected draftee. There is no law in the land to make a man undergo treatment to put his body in shape to serve his country. There is only the tact and judgment of his reëxamining doctor—and this puts an added burden upon us. It

ground, physically handicapped condition, etc., are being weighed and evaluated.

The time now has come for rehabilitation to step out and take the place it deserves in our public life and our public thinking. Nobody believes the winning of the war and the peace will be easy. But armed with the most effective weapons of rehabilitation we can devise, we know it will be easier.

By a curious coincidence, rehabilitation and much of our fighting manpower of today are in reality twins. They were both born in World War I. They both grew up in the peace era between wars. And they both now stand ready to serve in the hour of the Nation's need. But, they cannot serve most effectively unless they are merged, and it is up to us to bring about this merger.

SUMMARY

Rehabilitation of military rejectees is a crying need of all nations arising out of World War II. Surgery is a variety of human salvaging, but does not complete it, though progress in surgery makes more human salvaging possible. Experiences in an army amputation center and with the New Jersey Rehabilitation Commission are described. The Curative Workshop and classroom teaching were two important methods employed. The one certain fundamental requirement for successful rehabilitation is coöperation of the patient and his realization that society has a definite place for him.

SUMARIO

La rehabilitación de los militares rechazados constituye una urgente necesidad en todas la naciones, como consecuencias de la guerra actual (World War II).

La cirugía es un medio de salvamiento humano, y aún cuando insuficiente *per se*, el progreso en todos los ramos de la cirugía prometen más y más el salvamiento humano.

El autor describe las experiencias en un "Centro de Amputación" de las fuerzas militares y de la Comisión Rehabilitación de Nueva Jersey.

La Sala de Trabajos de Cura y la Sala de Enseñanza, son importantes métodos empleados.

Un requisito fundamental para la rehabilitación es la cooperación del paciente y su reconocimiento que en la vida social se le asegura un puesto de utilidad.

RÉSUMÉ

La réhabilitation de ceux rejetés par l'armée ou par la marine vu qu'ils sont impropres pour le service militaire est une question qui est à l'ordre du jour. La chirurgie contribue mais ne complète pas cette réhabilitation. Les résultats des études et des expériences personnelles du centre militaire du New Jersey Rehabilitation Commission pour les amputés sont rapportés en détail. Il importe d'obtenir la coopération du mutilé et de lui démontrer les heureux résultats qu'une intélligente persévérance peut obtenir, et surtout de le préparer à remplir un rôle utile dans la société.

Выводы

Реабилитация военных инвалидов повсюду является очень острой необходимостью, созданной Второй Всемирной Войной. Хирургия является одним из способов восстановления человеческаго матеріала, но только частичным, хотя прогрес хирургии расширяет поле человеческой реставрации. В этой статье описан опыт приобретенный в военном ампутационном центре в Ню Джерси Реабилитационной Комиссии (New Jersey Rehabilitation Commission). Двумя важными методами являются лечебная трудовая мастерская и школьное лечение. Основным принципом для успешной реабилитации является содействие пациента и его понимание, что общество имеет для него определенное место.

Crush Syndrome*

HAMILTON BAILEY, F.R.C.S. (ENG.), F.I.C.S.

LONDON, ENGLAND

THE term "crush syndrome" is not a particularly good one, but it is always difficult to alter nomenclature which has become popular. As Benison points out, often the patient remains comparatively well while trapped, the symptoms coming on after release; the "crush syndrome" would, therefore, be better named the "release syndrome." Because anuria is the leading feature, Bywaters and Dible suggest that the condition should be known as "traumatic anuria."

Few British surgeons had heard of the crush syndrome until 1941, for it had not been described in the English literature. According to E. G. L. Bywaters, by the end of the 1914-18 war the syndrome was well recognized by the Germans. Even before this era the condition was not unknown; nineteen cases had been recorded in connection with the Messina earthquake in 1909.

In order to make clear what is meant by this term, a description of a typical case history will be given.

As a result of bombing, masonry collapsed and the patient's thigh was pinned beneath débris (Fig. 1) for about two hours. He was extricated and taken to a hospital, where he was treated for shock with good effect. Radiography revealed no bony injury, but obvious extensive muscle damage and hematoma formation had occurred in the affected limb. About twenty-four hours later his urinary output became severely diminished. In spite of a high fluid intake, anuria followed.

Too often death from uremia results, usually about the seventh or eighth day. The problem before us is to institute effective treatment. In order to do so, the cause of the syndrome must be understood. At the present time it can hardly be said that the understanding of the underlying pathology has passed the stage of ingenious hypothesis.

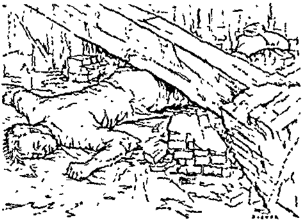

Fig. 1. The type of accident which results in the crush syndrome.

ETIOLOGY

So akin is this phenomenon to anuria following incompatible blood transfusion that the idea of uriniferous tubules choked with disintegrated erythrocytes was appealing. Since many crushed patients had received blood or plasma transfusion, it was not unnatural that inquiring minds demanded that anuria from such a cause should be eliminated before a new explanation was sought. Fortunately, a few cases were reported where transfusion had not been given; furthermore, cases also occurred before transfusion was in general use. It now seems established that the anuria and other toxic phenomena are due to poisonous products entering the circulation from crushed and dying tissues. Some theorists suggest that katabolites, *e.g.*, histamine, released from the mass of crushed muscle are the cause of the trouble; others that the pigment myohemoglobin derived from the same source is the noxious agent. Shaw Dunn claims to have demonstrated a specific renal tubular lesion (Fig. 2). He argues that phosphoric acid or uric acid are more likely to produce toxic changes than myohemoglobin.

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* Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

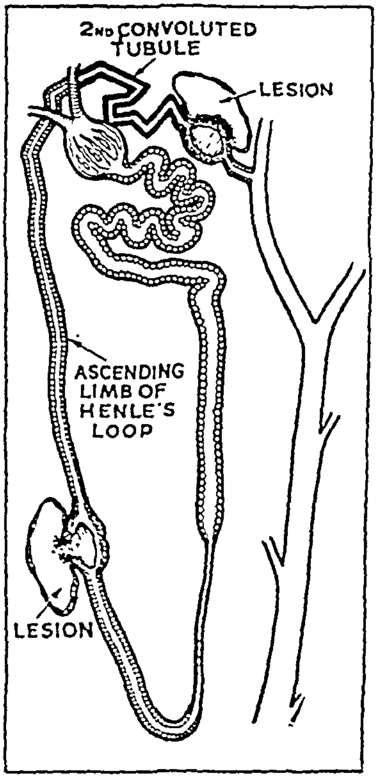

Fig. 2. The lesion in anuria due to crush syndrome (Shaw Dunn's findings). The ascending loop of Henle and the second convoluted tubules are alone affected.

From the practical standpoint, one piece of experimental work is of outstanding significance. Eggleton has shown that the failure of renal function following limb crushing in dogs can be minimized or abolished by readmitting circulation to the crushed limb gradually.

Patey and Robertson believe that the phenomenon is due entirely to an escape of blood constituents into the tissues of the limbs, the capillaries of which have temporarily lost their function through long compression. They believe that fluid given intravenously drains into the toneless member, the potential capacity of which is enormous.

Still other theories have been put forward. Many of these appear to be poorly supported by biochemical or pathologic findings. Before leaving this interesting, but unsatisfactory, inquiry we should take into consideration that sulphonamides, particularly sulphapyridine, predispose to hematuria and oliguria.

CLINICAL FEATURES

The patient remains comparatively well while trapped; the untoward symptoms come on usually in a matter of hours after release.

GENERAL CONDITION

Change in the mental outlook is often a premonitory sign. Cheerfulness gives place to apathy; composure to restlessness; unclouded cerebration to mild delirium. Fainting sometimes ushers in the syndrome. From the point of view of instituting rational treatment it is of paramount importance to make up one's mind whether the patient is suffering (in part) from shock, and, if so, what part shock or delayed shock is playing in production of symptoms. In this connection oft repeated blood pressure readings are of signal service. It should be noted that a number of observers state specifically that their patient was not suffering from shock or had recovered from shock. Slight cyanosis has been observed so often that it can be taken that this sign of anoxemia is an integral part of the syndrome. Mild jaundice has been noted in several cases; its onset is reported as early as the second day and as late as the fourteenth day.

THE URINE

Most patients admitted as air raid casualties pass comparatively little urine during the first twenty-four to thirty-six hours. This is due to a variety of causes, such as shock, or dehydration following adrenal over-activity at the time of the ordeal. This, coupled with the fact that the nursing staff is usually overworked by the inrush of casualties, leaves little wonder that often oliguria, the cardinal premonitory sign of the crush syndrome, has been overlooked in the early stages. Like other forms of anuria, the longer the condition persists the more difficult it is to treat. The scanty urine excreted during the early stages of the crush syndrome is highly acid, and often contains blood pigments. Of course a catheter may be necessary in order to secure sufficient urine to make this observation.

THE LIMB

So impressive is established anuria that most observers reporting cases have failed to detail the physical signs they found in the limb. If Patey and Robertson's theory is correct, one would have expected the swelling of the limb to be so striking as to demand comment, yet this does not appear to be a general rule. In some cases the limb presents signs of impending gangrene; it is relatively cold and the nail beds are cyanotic. In other cases there is edema and blistering. Further observations on the girth of the limb, the presence of edema and the state of the pulse below the crush are needed.

FIRST AID

During the period of pinning, if conditions allow, fluids should be given by mouth (if necessary by a long rubber tube and funnel which should be part of the armamentarium of rescue parties). Any warm fluid is suitable, and alcohol must be avoided. If there is severe pain, morphia injections must not be withheld, but it is questionable if heavy doses of ½ to 1 gr. should be given. However remote the chances of extrication may seem, mental encouragement to the victim is essential. When respiration is restricted, every effort must be made to administer oxygen to the trapped patient (Shepherd). As soon as the limb has been freed, or before if possible, a tight bandage or tourniquet must be applied *above the part which was crushed.* This must be carried out as a first aid measure before the patient is moved.

TREATMENT

That some kind of tourniquet or an elastic web bandage should be applied before release, as suggested above, or as soon afterwards as practicable, in order to prevent a mass release of toxin into the circulation or loss of blood constituents into it, seems agreed upon. That the tourniquet be loosened gradually and intermittently is the essence of the fulfilment of all the hopeful theories built around this subject. Patey and Robertson employ a pneumatic tourniquet.

Cohen finds that the absence of arterial pulse due to arterial spasm or "stupor" is quite common when blood is extravasated in the neighborhood of an artery, and if at the end of six to twelve hours the distal pulse has not returned, he advises that at any rate the main vessels should be exposed under local anesthesia and cleared of surrounding blood clot. If time permits, periarterial sympathectomy can be performed with advantage. If necessary the wound can be left unsutured. These remarks concerning operative treatment apply to patients admitted in good condition and where full preventive measures regarding renal protection have been inaugurated. This brings us to the all important management of the case.

As soon as the crushed patient has been thoroughly examined clinically, it will be possible to segregate the case into one of four categories:

A. *The patient is not severely shocked; indeed he appears comparatively well.*

This is the largest group and the one where preventive measures are preëminently important.

1. Place some form of tourniquet above the crushed area and arrange for this to be loosened intelligently over a period of several hours. This important task must not be relegated to a nurse or an orderly. The surgeon or his properly instructed deputy must, if necessary, be called every hour during the night.

2. Order in writing on the patient's case sheet that all urine must be saved and charted. At the end of twenty-four hours, the amount the patient has passed must be clearly recorded. Accurate charting must continue for at least fourteen days.

3. Order a high fluid intake—5 to 6 pints at least in the twenty-four hours. If necessary give this intravenously or intramuscularly, but usually it suffices to encourage the patient to drink.

4. Prescribe sodium citrate (not *potassium* citrate) 2½ grammes and sodium bicarbonate 2½ grammes to be given every three hours until the urine is alkaline to litmus, and continue with this prescription as necesary to keep the urine alkaline. The urine must be tested twice a day.

B. *Unquestionably the patient is suffering from oliguria.*

The call for alkalinization of the urine is urgent. There is no better method than to inject intravenously 10 cc. each of isotonic sodium lactate solution and a saturated solution of sodium bicarbonate.[*] If these drugs are not available, a 3.8 per cent solution of sodium citrate can be given intravenously. In contradistinction to cases belonging to Group A, fluid should be administered by the intravenous route; such administration should proceed cautiously at first.

C. *The patient is suffering from severe shock.*

The treatment of the shock must receive priority. The extent of the renal damage being unknown, it would be foolhardy to proceed in the usual manner of treating shock by modern methods. Even in cases of the shock-hemorrhage syndrome, blood transfusion should not be employed until it has been proved that the kidneys are functioning reasonably well. Plasma transfusion is likewise contraindicated in the first instance. In days gone by, many cases of shock were successfully tided over the critical period by infusion of crystalloid as opposed to colloid solutions. Therefore it is advised to rely upon the administration of intravenous saline or better still 5 per cent glucose, combined with injection of pressor substances, *e.g.*, desoxycorticosterone, until a flow of neutral or alkaline urine has been established. Once the kidneys have been protected, plasma or, if necessary, blood can be gravitated into a vein with confidence and benefit.

D. *Anuria is established.*

A considerable experience of anuria in civil surgery has convinced me that to sit with folded hands and hope that the patient will pass urine is rarely rewarded by anything but remorse that more active treatment was not started earlier. In the anuria of the crush syndrome the problem of rational treatment is easier than in cases occurring in civil practice where an obstructive lesion, *e.g.*, calculous anuria, must be eliminated before attempting to stimulate renal functions. There seems to be no reason for not proceeding in precisely the same manner as in nonobstructive anuria from other causes:

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[*] Crooke's Collosols put up these drugs combined ready for use in ampoules.

1. Ascertain whether low blood pressure is the cause of the anuria (prerenal anuria). If the blood pressure is very low concentrate on endeavoring to raise the blood pressure but observe the stipulations detailed under sub-heading C.

2. If the blood pressure is adequate, administer isotonic sodium sulphate (4.28 per cent) intravenously very cautiously, and not exceeding 1 to 1½ pints unless the urinary flow is reëstablished. While this is proceeding, hot packs are applied to the loins. The administration of standard doses of adrenal cortical extracts subcutaneously cannot be harmful and in the opinion of many is of considerable benefit.

3. Take the patient to the operating theater and administer a small (half) dose of spinal anesthetic. A spinal anesthetic, of itself, has been shown to terminate reflex anuria, but an additional reason for giving the spinal anesthetic is that it will help to make cystoscopy painless. Through the cystoscope ureteric catheters are passed, and we wait for a full quarter of an hour to see if urine drips from the catheters. On many occasions this enterprise has been rewarded. When proof that renal function has awakened is forthcoming, we proceed to coax the renal epithelium to activity; sodium sulphate (4.28 per cent) or, alternatively, 5 per cent dextrose is given intravenously, in proportion to the urinary output.

4. When the above measures are unsuccessful, carry out renal decapsulation with the patient in the completely prone position. There appears to be too much hesitation in performing this operation. With the area already partially anesthetized by the spinal anesthetic, local infiltration is perfectly satisfactory. One kidney should be exposed and decapsulated without delivery of the organ, and if all goes well the other side can be treated similarly. If Mayo's incision is employed, there is no necessity to suture the wound or wounds save only for a few skin stitches.

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SUMMARY

First aid and general treatment of crush syndrome are discussed. Cases are divided into four categories: those in which the patient is not severely shocked; those in which the patient is unquestionably suffering from oliguria; cases of severe shock; cases in which anuria is established. In Group I measures are usually preventive. In cases of oliguria, alkalinization is recommended. Patients with severe shock should be given a preliminary injection of intravenous saline or glucose followed by blood or plasma transfusions when the kidneys are functioning well. If anuria is established, the patient should be treated as in nonobstructive anuria from other causes.

SUMARIO

Se discute el primer auxilio y el tratamiento general del síndrome de compresión (magullamiento). Los casos son divididos en *cuatro categorias: Aquellos en* que el paciente no está severamente choqueado; aquellos casos en que el paciente esta indudablemente sufriendo de oliguria; casos de choques severos y casos en que la anuria está establecida.

En el primer grupo el tratamiento es generalmente preventivo. En casos de oliguria, alcalinización se recomienda. En los casos de choques severos deberán recibir una injección preliminar salina entravenosa o de glucosa, seguida por transfusión de sangre o de plasma cuando los riñones funcionan bien. Si anuria existe, el paciente deberá recibir el mismo tratamiento que en anuria (sin obstrucción) y de otras causas.

RÉSUMÉ

L'auteur discute le traitement d'urgence et le traitment général des écrasements. Il classifie les cas en quatre catégories: (1) les cas dans lesquels les blessés ne sont pas en état de choc sévère; (2) les cas dans lesquelles les blessés souffrent d'oligourie; (3) les cas de choc profond; (4) les cas d'anurie persistante. Dans le premier groupe, le traitement est préventif. Dans les cas d'oligourie, l'alkalinsation est préconisée. Dans les cas de choc profond, si les reins fonctionnent bien on donnera des injections intraveneuses de sérum artificiel, additionné de glucose, suivies de transfusions de sang ou de plasma. Si l'anurie est établie, le malade recevra le traitement indiqué dans toute anurie nonobstructive.

Выводы

Эта статья обсуждает первую помощь и общую методику лечения синдрома возникающаго в повреждениях причиненых сокрушающим давлением. Все случаи разделены на четыре категории: 1. те, которые не сопровождены сильным шоком, 2. те, в которых безусловно присутсвует уменьшение мочи (oliguria), 3. случи очень сильнаго шока, 4. случаи полнаго отсутствия мочи (anuria). В первой группе применимы главным образом предохранительныя меры. *В случаях уменьшения* мочеизделения рекомендуется алкализация. Пациентам с глубоким шоком необходимо дать сначала интравенозное вспрыскивание нормальнаго соляного раствора или глюкозы, а затем, если почки работают, перелив крови или плазмы. В случаях полной анурии, лечение тоже самое как и во всех случаях анурии не механическаго происхождения.

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Argentina

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La Revista de Medicina y Ciencias Afines (Buenos Aires) Año VI, Nos. 1, 2 and 3, Jan., Feb. and Mar., 1944.

Revista Argentino-Norteamericana de Ciencias Médicas (Buenos Aires) Año I, Nos. 7 and 8, Nov. and Dec., 1943.

Revista de la Sanidad Militar (Buenos Aires) Año XLIII, Nos. 2 and 3, Feb. and Mar., 1944.

Brazil

Anais Paulistas de Medicina e Cirurgia (São Paulo) Vol. XLVI, No. 6, Dec., 1943; Vol. XLVII, Nos. 1 and 3, Jan. and Mar., 1944.

Boletim do Sanatorio São Lucas (São Paulo) Vol. V, No. 6, Dec., 1943.

Brasil Médico (Rio de Janeiro) Año LVIII, Nos. 1, 2, 3, 4 and 5, Jan., 1944; Nos. 10-13, Mar., 1944.

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(Continued on page 352)

Naval Medical Research in Wartime[*]

REAR ADMIRAL WILLIAM L. MANN, M.C., U.S.N.

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NATIONAL NAVAL MEDICAL CENTER

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IN THIS war, more particularly than in previous conflicts, medical officers in the United States Navy serving *afloat, afield* and with *aerial* units have many new problems which demand study and research. Fighting men must survive and function effectively in extremes of environment from Icarian heights to cetacean depths, from Arctic frigidity to tropical torridity, from monotonous calm to explosive blast. The tempo of modern fighting is now paced by the whirring of propellers and the whirling of wheels instead of the slow tramp, tramp of marching feet.

The corridors of war are vibrant with the deafening roar of motors, redolent of petroleum fumes, and illumined by the Martian flash of new machines of war. Modern warfare presents medical problems *sui generis*, which have no counterpart in times of peace, and their solutions are characterized by a quality of immediacy. Thus research during war has two special attributes: first, the problems grow out of, and are formulated by wartime experience; and second, the economy of time is such that a workable solution today is more to be desired than a complete answer tomorrow. Our research activities are therefore marked by practicality, applicability and speed. The motivation to research is the desire to contribute in every way possible to the winning of this war, and not merely the satisfaction of an intellectual curiosity. *Fundamental* research must now be secondary to *applied* research.

Naval medicine is an ancient art and a modern science. Science discovers and formulates principles; art applies these principles to practical use. Hence, for the development of the science of Naval Medicine, the medical officers of the Navy must conduct their own research and investigation while guarding the health of Naval personnel.

Medical research in the Navy is not a new function, but has been carried on for years in many naval establishments. The Naval Medical Department maintains research facilities in Aviation Medicine at Pensacola, in Submarine Medicine at New London, as well as various projects in addition to routine duties in naval hospitals and other naval medical activities.

All research in naval medicine is coördinated under the Research Division of the Bureau of Medicine and Surgery. One of our outstanding and most able medical officers, Rear Admiral H. W. Smith, (MC), U.S.N., (Retired), is in charge of the Research Division and coordinates the research activities of the Medical Corps. He also acts as the naval medical representative and liaison officer to other national and international research groups.

The Surgeon Gene [illegible] avy, Vice-Admi [illegible] sonally interested in naval medical research. It is largely through his interest, initiative and foresight, that a broad program of research has recently been developed and that the Institute was founded and dedicated to strengthening the rôle of the Medical Department in accomplishing its mission, that of keeping "the *most* men at the *most* guns for the *most* days."

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[*] Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

The Naval Medical Research Institute, established and commissioned on Navy Day, October 27, 1942, is now the central and primary focus of naval medical research. Since I am more familiar with the development and work of this research unit, the major part of my remarks will be confined to its rôle in promoting advances in Naval Medicine.

The Naval Medical Research Institute is located at Bethesda, Maryland, as an integral part of the National Naval Medical Center, and is staffed by officers of the Naval Medical Service and civilian scientists. Its primary purpose is to solve military medical problems through coördinated and coöperative research. The Institute is housed in three adjacent buildings, two of permanent construction and one of temporary nature. To facilitate administration and to expedite the work of the Institute, the organization is partitioned into division and departmental laboratory groupings.

There are divisions of:

1. Naval Ecologic Medicine
2. Naval Preventive Medicine
3. Dental Research
4. Equipment Research.

The laboratory groups comprise:

1. Biophysics, Special Senses, and Applied Psychology
2. Nutrition and Biochemistry
3. Microanatomy, Pathology, and Electron Microscopy
4. Microbiology, Bacteriology, and Virology
5. Physiology, Pharmacology, Toxicology, and Experimental Surgery
6. Environmental Compartments; High Altitude, Deep-Sea and Psychrometric Chambers
7. Dentistry
8. Biometrics.

The projects are classified into:

1. General—affecting the Navy as a whole
2. Maritime Medicine—surface vessels
3. Submarine and Diving Medicine
4. Aviation Medicine
5. Field Medicine—*i.e.*, Medical Service with the U. S. Marine Corps.

The staff of the institute is composed of:

1. 30 Commissioned Officers
2. 10 Wave Officers
3. 5 Civilian Scientists
4. 50 Hospital Corpsmen
5. 25 Enlisted Waves.

It may be of interest to enumerate and describe briefly some of the special equipment and facilities that the Institute affords. The low pressure chamber is capable of attaining a simulated altitude of 60,000 feet, with its corresponding low temperature of −67° F., within fifteen minutes, starting at atmospheric pressure and ambient temperatures. A high pressure chamber in the diving unit may be used to simulate dives to a depth of 1000 feet, equivalent to a pressure of 500 pounds per square inch. At hand are gas-mixing rooms where gas mixtures of any combination may be compounded and properly mixed under high pressures. These gases, such as helium-oxygen mixtures, will be used for experimental work in diving and submarine medicine. The laboratories of psychometry are designed to produce temperatures of 0° F. to 120° F., with a control of one degree and humidities range from zero to 100 per cent, with a control of .1 per cent. Treadmills, ergometers and spirometers are used to study the "man-o-wars" man in relation to his external environment. Nutrition, water and salt metabolism and clothing are some of the directions research is taking in this division.

An air-conditioned compartment was especially designed to house the electron microscope, which is now in daily use.

Through years of experience industrial corporations have learned that "the foundation of research work lies in the quality of the minds of the investigators and the freedom and tranquillity permitted for the use of their abilities," and that the cost of research is repaid many times in the commercial value of discovery. Medical research is not to be excepted in these respects, for it is recompensed not alone by monetary returns, but also by human values. One example may be given from the investigations of the Naval Medical Research Institute, namely, our attempt to obtain drinking water from sea water.

The plaint which issued from the parched lips of The Ancient Mariner,

> "Water, water everywhere,
> And all the boards did shrink!
> Water, water everywhere,
> Nor any drop to drink."

need no longer be the wail of shipwrecked men, for Elysian visions of sweet water flowing from the briny billows of the sea to quench their intolerable thirst are now a reality. For the first time in history, an effective, simple chemical method of demineralizing sea-water has been achieved—an unique and invaluable contribution to the morale and physical welfare of our fighting men, that alone will repay the cost of the Naval Medical Research Institute and justify its establishment.

The United States Navy is utilizing to the fullest extent its facilities and scientific personnel in the study and solution of urgent medical problems arising from military action and need, to the end that wounds of war may be healed and the ways of peace be hastened.

In conclusion, it may be stated before this assembly of surgeons, that surgery is most interrelated with war and this relation existing between the military and surgical professions has been recognized since the days of the Ancients. In fact, one great military writer has resorted to medical and surgical terminology and has defined war as an "Epidemic of Trauma."

It therefore seems appropriate that the operating surgeon must cope with this epidemic of personal injuries created by the modern implements of human destruction.

An interesting fact is involved in the functions of surgery in war. While other activities and agencies are conducting research to create newer and greater instruments that will increase the rate of human destruction, the medical and surgical professions have initiated research to develop improved methods to diminish and to repair, on friend and captured foe, the effects produced by the newer weapons of war during this "Epidemic of Trauma."

SUMMARY

Naval medical research in wartime has several particular attributes: (1) the problems arise from the exigencies of war; (2) the solution must be immediate rather than final; (3) fundamental research is subordinate to applied research. The work is carried on by the Research Division of the Bureau of Medicine and Surgery at the Naval Medical Research Institute at Bethesda, Maryland.

SUMARIO

Estudios navales-médicos, en tiempo de guerra, tienen ciertos atributos particulares:

1. Los problemas originan en las exigencias de guerra.
2. La solución de dichos problemas es inmediata y no remota.
3. La investigación fundamental está subordinada a la práctica aplicada.

El trabajo es continuado por el Departamento de Investigación de la Oficina de Medicina y de Cirugía del Instituto Naval Médico en Bethesda, Maryland.

RÉSUMÉ

Pendant la guerre, les recherches médicales de la marine sont influencées par trois considérations: (1) Les problèmes sont suggérés par les exigences de la guerre. (2) Les solutions doivant être immédiates plutôt que finales. (3) Il importe que les recherches soient fondamentales. Toutes ces études et recherches reçoivent l'attention du "Research Division of the Bureau of Medicine and Surgery" de l'Institut Navale de recherches médicales de Bethesda, Maryland.

Выводы

Флотская медицинская научно-исследовательная работа характеризуется несколькими особенностями:

1. Задачи возникают на почве неотложных военных нужд.

2. Решение должно быть более немедленным чем окончательным .

3. Основной научный розыск подченен прикладному розыску. Эта работа выполняется научно-исследовательным отделом медицинско-хирургическаго комитета при Флотском Медицинском Исследовательном Институте в Бетесда, Марыланд (Research Division of the Bureau of Medicine and Surgery at the Naval Medical Research Institute, Bethesda, Maryland).

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(Continued from page 348)

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Revista del Instituto de Salubridad y Enferme-

(Continued on page 376)

Surgeons and Events

by

DR. MAX THOREK

GUILLAUME DUPUYTREN—(1770-1835)

GUILLAUME DUPUYTREN, one of the most scintillating stars of French medicine, first saw the light of day on Oct. 5, 1777 in the village of Pierre Buffière in the Haute Vienne district about eighteen miles from Limoges.

Guillaume Dupuytren.

Guillaume's father, a lawyer of scant means, sent him to the *Collège of Magnac-Laval.* At the age of twelve the luck star which seemed to guide the bo throughout his life first shone on hin A certain Captain Keller was so im pressed by Guillaume's good looks an intelligence that he requested and ol tained permission from Guillaume' father to educate the lad. The captain' brother was principal of the *Collège d la Marche,* and there Guillaume was sent where, it may be noted in passing, h was a poor Latin student.

At sixteen he wanted to become a sol dier, but his father intervened and mad him study medicine, this although h made no provision for the young stu dent's maintenance. Many a time as medical student at the *Ecole de Médecin* in Paris, Dupuytren went without foo and clothing and was forced to spen many hours of the cold winter days i bed to keep warm. However, his spiri of pride and independence made Dupuy tren indignantly refuse all offers of aic

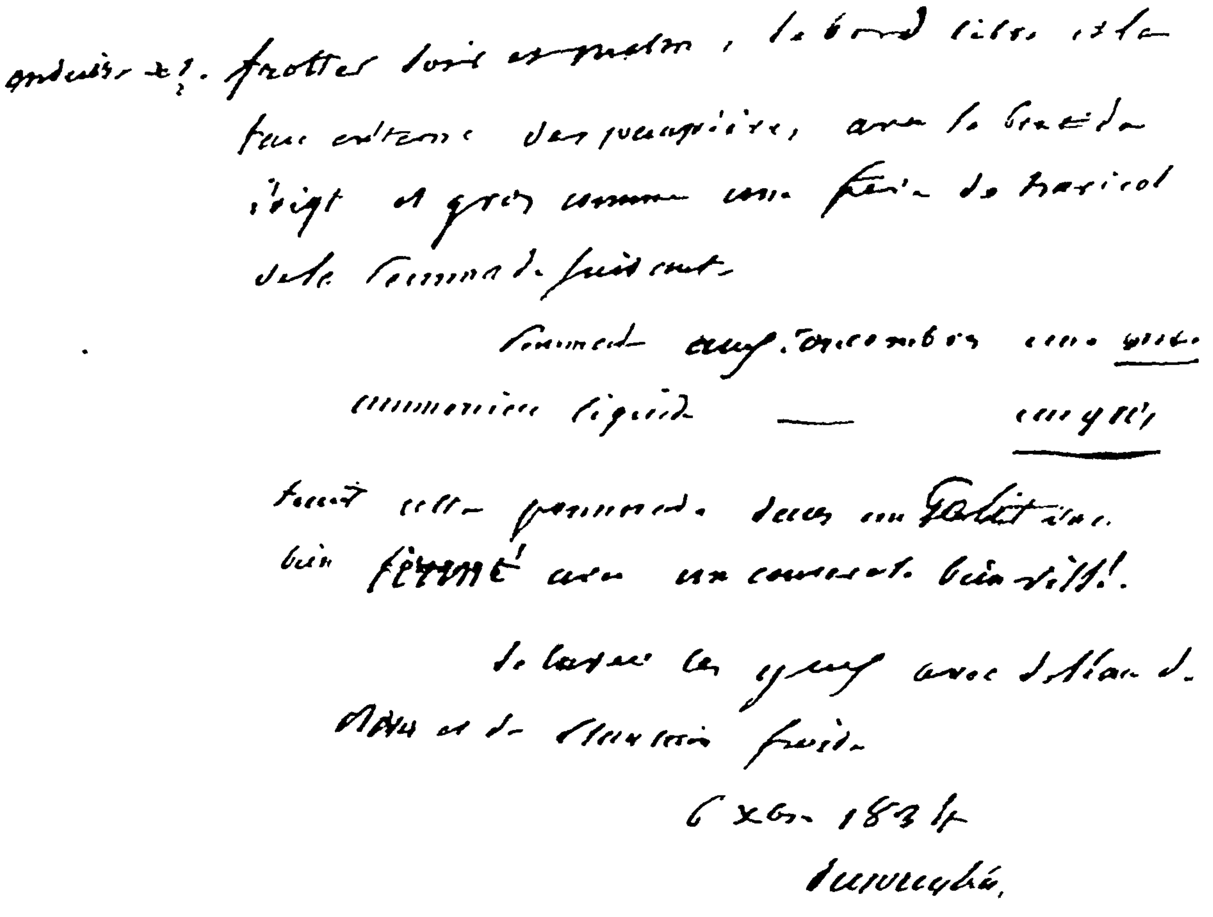
At the age of eighteen he obtained th position of prosector at the newly es tablished *Ecole de Santi.* The post car ried with it a salary of 2000 francs, bu the course of the Revolution had cause the paper currency to so depreciate i value that Dupuytren wrote home for si crowns, which his mother indignantly re fused him. In these early misfortune we may see the foundation for that bit terness of spirit which he carried to th grave, even though f [illegible] smiled on him for many years. The Revolution, however, did thus early in his career furnish him with some experience in war surgery when the Parisian upheaval of 13 Vendémiaire, 1795, provided him with wounded to attend.

For several years his work was centered about the *Ecole de Santi.* Corvisart and Leroux gave him full charge of autopsies at the school. Through his teaching connection his name was listed as a member of the *Société Médicale d'Emulation* (1797). In 1799 the opportunity was afforded him of carrying out some anatomical research with Leclerc. In 1800 Dupuytren was conscripted into the Army, but the faculty of the *Ecole de Santi* valued his services sufficiently to obtain his exemption.

In 1801 Dupuytren became chief of the anatomical work, privileged to study with Chaussier. He discovered the canals of the diploe. At this time Dupuytren became an ardent admirer of Bichat, who was laying the foundations of modern pathology, and decided to turn his attention to pathology.

In 1802 recognition began to come to Dupuytren when he was named surgeon of the second class at the Hôtel Dieu. In 1803 he founded the *Société Anatomique.* Bayle began to write up some of the work being done in pathology, and Dupuytren demanded that he be named as the founder of pathology in place of Bichat, who had recently died and eliminated himself thereby as a rival, falsify-

(Continued on page 369)



[illegible] 2°. frotter soir et matin, le bord libre et la
face externe des paupières, avec le bout du
doigt et gros comme une tête de haricot
de la pommade suivante.

Pommade aux concombres une [illegible]
ammoniaque liquide — [illegible]

tenir cette pommade dans un flacon
bien fermé avec un bouchon bien [illegible].

Se laver les yeux avec de l'eau de
[illegible] et de [illegible] froide.

6 Xbre 1834

Dupuytren.

Medical notes in Dupuytren's handwriting and bearing his signature. (From the author's collection.)

Cesarea Extraperitoneal en Distocias Provocadas por las Partes Blandas de la Pelvis y en Mujeres Infectadas*

(Indications for Extraperitoneal Cesarean Section in Certain Cases of Dystocia of the Soft Parts and in Infected Women)

BERNARDO J. GASTÉLUM, M.D.
MEXICO, D. F.

(PART I)

SUMMARY

Emphasis has been placed on the significance of dystocia of the soft parts, which, as Döderlein has stressed, may at times assume the importance of those due to deformities of the osseous pelvis, by interfering with the descent of the fetus and even making its delivery impossible through the natural channels.

When the obstetrician overlooks an existing dystocia of the soft parts, the parturient woman is frequently submitted to various examination and vaginal manipulations that lead to a treatment of expectancy in the hope of a natural delivery. This unnecessary prolongation of labor favors the excessive traumatization of the birth canal and exhaustion of the mother which, at times, endangers her life and that of the baby. It is in these infected cases, with a ruptured bag of waters and threatening fetal asphyxia, but who still possess powerful uterine contractions, that the extraperitoneal cesarean section is indicated.

It is the opinion of the author that the extraperitoneal cesarean section should be performed in all cases in which it is indicated, and, eventually, despite its technical difficulties, it will become the procedure of choice, in a manner similar to the present acceptance of the lumbar route in nephrectomies. Waters' idea, applicable to all cases, is the one that should prevail over all the others that have inspired the procedure of extra-peritoneal cesarean section.

CUANDO el partero es llamado examinar a una mujer embarazad tiene presente entre las dificultade que puedan imposibilitar el parto, aquellas que se refieren especialmente a l pelvis ósea, al feto mismo, al estad general de la paciente. No le pasa po la imaginación anomalías que se refiera propiamente, a las partes blandas de l hilera genital, a menos que estas alteraciones constituyan ese cuadro de l patología de las partes blandas qu enumera los textos de obstetricia: conglutinación del orificio uterino, hematomas de la vulva, de la vagina, vaginismo, estenosis cicatriciales de la vagin y del cuello uterino, prolapso, anomalía del cordón, de la contracción uterina rigideces del cuello, distocias de naturaleza placentaria, etc. etc., agréguens a éstas, los trastornos a que dan luga las intervenciones quirúrgicas, los traumatismos, el uso de caústicos o de otro métodos traumatizantes. Todos esto antecedentes cada autor lós ordena a manera; distocia [illegible] al, [illegible] nóbil las partes bland [illegible] la anomalías de la pelvis ósea, de la vías blandes del parto, de la contractilidad, de la forma y tamaño del facto, etc. El caso es, que si faltan estos antecedentes referidos a las partes blandas pero de tal importancia que por sí mismos llaman la atención, el tocólogo no hace ninguna investigación del conducto perineovagino uterino.

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* Presented at the Third International Assembly of the International College of Surgeons in Mexico City.

Pues bien, hay que preguntarse y responder sinceramente a la pregunta, ¿cuántas ocasiones ha tropezado el tocólogo con vicios de la pelvis ósea o esos padecimientos de las partes blandas a que acabo de referirme y que le hagan difícil o imposible el parto? De ordinario, cuando esos padecimientos existen son conocidos previamente, trombus de la vulva y de la vagina, placenta inserta anormalmente, desprendimiento previo de la placenta, feto de gran tamaño, duplicidad de los órganos, etc., lo que sorprende ordinariamente es, que un embarazo que ha evolucionado normalmente, y una mujer que no presenta las alteraciones anatomo-patológicas a que me he referido, de constitución ostensiblemente normal, el parto no se verifique como se esperaba; se vuelve intempestivamente difícil, frecuentemente imposible, teniéndose que recurrir en más de una ocasión a métodos quirúrgicos aparentemente desproporcionados a los antecedentes. Esto quiere decir por lo tanto, que además de esos obstáculos al parto determinados por padecimientos o accidentes de las partes blandas, dándole a este concepto la extensión que le asigna Kroning, pues todo lo que no es óseo tiene que ser parte blanda, y como obstáculos provocados por partes blandas en el parto, se señala justificadamente tanto al prolapso del cordón, como a las presentaciones oblicuas por inserción baja de la placenta, existen otras dificultades opuestas por las partes blandas al descenso del feto, que no por no ser obstensibles, dejan de tener la máxima importancia en el desarrollo del parto. Que estos impedimentos eran conocidos desde hace varios siglos, nos lo enseña el famoso caso del carnicero Jacob Neufer, de Sigershanser, Suiza en 1500, que operó a su mujer embarazada por primera vez y que después de varios días de trabajo y con dolores espantosos, en presencia de matronas y prácticos de talla, abre el vientre como estaba acostumbrado hacerlo en la castración de los cerdos y extrae un niño que vive 77 años. Sutura la herida al modo veterinario, y la mujer vuelve a tener gemelos y cuatro partos más, lo que comprueba que la causa de la imposibilidad del primer parto, no era la estrechez de la pelvis ósea, sino la de las partes blandas. Y son á estos obstáculos, a los que voy a referirme en esta ocasión.

Para que el feto salga, el canal uterino vagino perineal habrá que dilatarse alrededor de treinta y cuatro centimetros; esta distensión de los tejidos en el estado ordinario parece desusada, tan poco elásticos se manifiestan y tanta es la resistencia que vencer para distenderlos. Pues bien no reflexionamos, tan natural es el parto, que estos tejidos pueden oponer resistencia a la marcha del feto e interrumpir su descenso. Que una vulva se abra más adelante o más atrás del eje pélvico, ocasiona también la misma dificultad. Por lo tanto del canal perineo-vagino-cervical, depende fundamentalmente el futuro del parto, de las partes blandas de este canal que no tomamos en serio, para referir a ellas el retardo en la marcha del trabajo.

De las partes blandas que constituyen la hilera genital, capaces de oponerse a la propulsión del feto, por las contracciones utero-abdominales, por orden de su importancia, tenemos; las fibras musculares circulares que forman el cuello uterino, el elevador del ano por sus inserciones a los bordes de la vagina, los músculos que forman propiamente la vagina, el músculo constrictor de la vagina que se continúa con el esfinter externo del ano formando una especie de ocho, de modo que las contracciones de estos músculos son solidarias; el psoas y los vasos, ilíaca y vena externa cuando son muy salientes, reducen los diámetros oblicuos y transverso del estrecho superior; no son menos importantes los diámetros del estrecho inferior o de la parte superior de la pelvis blanda, éstos diámetros son extraordinariamente dilatables gracias al apartamiento de los músculos elevadores y a la retropulsión del cóccix, de éstos diámetros del estrecho inferior, el transverso limitado en el esqueleto por las caras internas de los isquions, es disminuído en algunas ocasiones por el desarrollo de los músculos obturadores internos y la grasa isquio-rectal, sobre la aponeurosis del obturador algunas veces se desarrollan pequeños fibromas.

La pelvis blanda es un canal formado por músculos y aponeurosis que se insertan sobre la pelvis osteo-ligamentosa, esta pelvis es amplia cuando pasa el feto, su importancia ha sido reconocida desde los viejos trabajos de Fabbri, Sabatier, etc. La pelvis blanda presenta exteriormente tres orificios, uretral, vaginal y anal; la porción comprendida entre la vagina y el ano y entre éste y el coccix se llama perineo, anterior y posterior, estos dos perineos sufren una ampliación considerable en el momento de la expulsión del feto, pero aunque no se dilaten no constituyen, como asegura Crosse, un verdadero obstáculo para la salida del feto. De los orificios que acabamos de mencionar, el que nos interesa es el vaginal, con un diámetro cocci-subpubiano de ocho centímetros, y un transverso, de cuatro centímetros, el músculo elevador especie de diafragma invertido en forma de embudo constituye la capa profunda del piso perineal, la capa superficial es menos importante para obstaculizar al feto y la forman, el músculo transverso del perineo, que va de las caras laterales de la vagina a la cara interna del isquión también al esfinter anal, el constrictor de que ya hablamos lo mismo que el esfinter, los bulbos e isquio cavernosos.

La aponeurosis forman dos planos aproximados y confundidos hacia adelante y atrás, pero distintos y distantes en la parte media, por sí mismas excepcionalmente dificultan la propulsión fetal. Pues bien, una resistencia indebida de estas partes blandas al impulso del utero, conduce si la contracción es potente, y no cesa, a desgarros del segmento inferior del utero, si hay cierto equilibrio entre la resistencia de las partes blandas y la fuerza utero abdominal, el trabajo se detiene, se alarga, continuándose cuando la resistencia de las partes blandas es vencida, pero si esta resistencia es mayor que el impulso uterino, entonces el trabajo cesa y llegan poco a poco para la madre los trastornos de la fatiga obstetrica y de asfixia y muerte para el niño. El caso típico es este: un parto que principia y que todo hacía presumir un caso normal, intempestivamente se entrampa, el cariz de los hechos acaba con la primitiva alegría, la situación se vuelve oscura y hay que obrar.

Seitz, calcula que de dos millones de niños que nacen en Alemania, de diez y seis a veintemil mueren por dificultades de las partes blandas y que un tratamiento apropiado podría salvar cuando menos doce mil. Formó una interesante estadística, por la que, de los niños que mueren el 65 por ciento lo deben a obstáculos de las partes blandas, y el 20 por ciento a estrecheces pélvicas. Si por lo visto son las partes blandas las que dificultan el parto en mayor porporción que lo que lo hace la pelvis y los padecimientos que con an[illegible] cioné, hay que pregunt[illegible] stáculos al parecer tan deleznables son capaces de oposición tan seria?

Porque de los elementos musculares enumerados, los músculos del cuello uterino y el elevador del ano son los que realmente tienen importancia. También y muy trascendente los propios músculos del utero, porque esta musculatura es el factor determinante de la propulsión del feto.

Presenciamos hechos paradójicos: una mujer bien musculada, produce contracciones uterinas débiles en el momento del parto, y en otra de contextura delgada, su trabajo es notoriamente eficiente.

La causa de las contracciones uterinas en el parto es un fenómeno insuficientemente dilucidado, se atribuye a ecreciones internas, estímulo de las terinaciones nerviosas, etc.; la histerorafía interna y externa aplicada a su estudio, como medio para establecer una terapéutica medicamentosa del trabajo, no ha conducido a resultados prácticos y continúa como procedimiento de laboratorio. Fabre.

Con la debilidad de las contracciones uterinas se constituye una entidad patológica, la inercia, que puede revestir diversos grados, tanto por lo que se relaciona a la intensidad de los dolores del útero como a su duración; hay inercias transitorias, son una especie de pausa en el trabajo uterino, una vez recuperada la contractilidad por el descanso, el trabajo se reanuda y el parto termina felizmente. En otras ocasiones, aunque raras, no se reanudan las contracciones del útero, parece como si su energía se hubiese terminado definitivamente y este suceso puede ocurrir en el período de dilatación o en él de expulsión, por sí misma la inercia no es una razón para hacer una cesarea según Winter, y agrega, el tocólogo puede enjuiciar las causas determinantes de la debilidad de las contracciones y de la paralización del parto. La indicación para ''cesarear'', expresión que usa, solo puede justificarse por otras causas unidas a la anterior, es decir a la inercia.

La consistencia blanda del útero grávido de los primeros meses, es sustituída por su dureza debida a las contracciones intermitentes; el espesor de las fibras varía según la región y la época del embarazo. La porción inferior es más delgada que el resto del órgano, la pared uterina durante los cinco primeros meses engruesa por la hipertrofia del tejido muscular, y durante los cuatro últimos meses hay un adelgazamiento de este tejido posiblemente debido a su distensión. Fabre. Pero estas investigaciones hechas en mujeres muertas, si bien nos sirven para conocer los cambios anatómicos del tejido muscular uterino en la época del embarazo, no nos dan los medios de presumir lo que parará en una embarazada. Cuando la falta de contracciones uterinas o su debilidad no puede referirse a algún padecimiento ostensible, sino que radique en los centros nerviosos del utero, en su insuficiente desarrollo muscular o en la ausencia de las hormonas o substancias diversas que excitan la fibra, ¿como precisarlo? Lo que debemos hacer cuando no existan lesiónes que lo expliquen es agotar teoricamente en cuanto a la causa, la terapéutica recomendada como eficáz.

El límite de la onda muscular uterina estudiada hace muchos años por Pinar, se encuentra en el anillo de Schroder o de Bandl; hacia abajo el segmento es limitado por el orificio interno del cuello llamado obstétrico o *mecánico.* La mucosa cervical alcanza muchas veces una región más alta que la del orificio obstétrico, lo que prueba que una parte del cuello, Fabre, entra en la constitución del segmento inferior, lo que nos interesa desde el punto de vista de la contracción uterina, porque ésta solo alcanza hasta el sitio donde principia el segmento y por lo tanto el cuello y la porción del utero que forma el segmento inferior son indiferentes en la propulsión del feto.

De la manera como se contituya el segmento inferior, de la situación del utero en relación a la pelvis y a los organos que contiene, depende la posición del cuello. Si este queda en el centro de la pelvis, dentro del diámetro pelviano, su posición es ideal para el parto; si el desarrollo del segmento se hace desigualmente a expensas de la cara anterior o posterior, el cuello será desplazado hacia el punto opuesto, atrás contra el promontorio si se dilata la región anterior, adelante, detrás, del púbis, cuando es la región posterior la que se dilata; esta porción dilatada se llama saciforme, es tan delgada que puede creerse que se toca la presentación. El cuello uterino puede conservar su longitud a pesar de la constitución del segmento o bién está aplastado. La desviación hacia adelante o atrás del cuello por la indebida formación del segmento, entorpece el trabajo sin llegar a interrumpirlo a menos que aparezca la inercia, y ordinariamente, el segmento termina por formarse de manera normal, regresando el cuello al centro de la pelvis, el mejor tratamiento es la expectación, no hacer tactos y cambiar de posición a la enferma.

Las modificaciones en la posición normal del útero, anteflexión, anteversión retroflexión, retroversión, y las laterodesviaciones, son obstáculos para el descenso fetal si se han producido más allá de cierto radio, pues hay que tener en cuenta para que el parto no se interrumpa, la coincidencia entre eleje uterino y los de la pelvis. Se consideran tres ejes pélvicos, el del estrecho superior o de encajamiento, lo constituye la perpendicular sobre el plano del estrecho superior; el de la excavación o de descenso de Fochier, que es la prolongación del anterior, termina hacia abajo entre la segunda y tercera pieza cóccica, se la representa por una línea que principia en el ombligo y termina en el cóccix, la cabeza sigue esta trayectoria al ser empujada por la fuerza uterina y por ella se guía el tocólogo en sus tracciones sobre el fórceps, se le llama eje práctico; el del estrecho inferior o de desprendimiento, que forma con el eje anterior un ángulo de cien a ciento diez grados y este eje es casi horizontal cuando la mujer está acostada, prolongado hacia atrás termina en el promontorio.

Las relaciones del eje uterino con el ombilico-cóccigio han dado lugar a varias controversias con conclusiones diferentes; Fabre admite que durante la contracción uterina, los dos ejes del útero y pelvis coinciden, fuera de esta contracción, el útero se encuentra sobre la columna vertebral y el eje uterino forma con el eje de la pelvis en el sentido antero-posterior un ángulo de diez grados abierto hacia atrás. Por el exámen de los cuerpos congelados de mujeres embarazadas, se comprueba esta situación muy posterior del útero, se trata de personas muertas en los últimos meses de la gestación. Además durante el embarazo, bien conocida es la posición del útero por las observaciones que ha dado la cesárea, está torcido hacia la derecha, de tal manera, que el borde izquierdo es anterior y la cara anterior ve a la derecha. Existe entorpecimiento del trabajo, por éstas anomalías de la estática uterina, cuando alcanza exageradas proporciones, lo desagradable para la enferma, es que se reconozcan demasiado tarde o pasen desapercibidas. En un 20 por ciento el eje longitudinal del útero corresponde a la linea media, en un 50 por ciento es oblicuo a la derecha y en un 30 por ciento [illegible]; sin embargo estas [illegible] situación del útero [illegible] como ordinarias, mas cuando el abdomen se encuentra fuertemente caído hacia adelante, este solo hecho ya es bastante no solo para determinar dificultades en el trabajo, sino para impedirlo. Debemos recordar además, que en los dos primeros meses del embarazo el útero se encuentra en anteflexión ligera, su aspecto es piriforme, después del tercero y cuarto mes es esférico, en los tres últimos meses se desarrollan las regiones inferiores que forman el segmento. Si las paredes abdominales son resistentes el utero es rechazado contra la columna vertebral y colocado atrás del eje del estrecho superior, si las paredes son blandas hace saliente adelante.

Los fuertes dolores de desgarramiento que sufre la parturienta, se deben principalmente, a la distensión de los tejidos de la pelvis; en personas jóvenes las cosas vuelven a su estado anterior con mucha rapidez, en mujeres de más de treinta y cinco años la elasticidad de los tejidos disminuye considerablemente, no se dilatan y cuando lo hacen se retraen con lentitud, quedando entre sus haces, vestigios cicatriciales de desgarraduras provocadas por la dilatación, que van a jugar desde el punto de vista de la dilatividad un papel importante en el próximo parto. Si llevamos a la obstetricia el concepto de degeneración del sistema vascular, de las vísceras y de los tejidos, que priva en medicina para explicar muchos padecimientos que solo son propios de la edad madura, y que en los jóvenes se deben a la exageración de los vicios de los que participa la mujer moderna; alcohol, tabaco, vida social y nocturna muy agitada, deportes, uso de modas que antes estaban solo reservadas al hombre, etc. etc., entonces tendremos como parturientas a jóvenes de edad, pero con los mismo inconvenientes que nos presentan las primíparas añosas y a las que Doderlein dedica consideraciones especiales.

Según las investigaciones de Bondy, la edad óptimo para el parto es de los diez y ocho a los veinte años admitiendo una amplitud fisiológica hasta los veintitres. Alrededor de los veinte años los tejidos son turgentes, distendibles, elásticos, tanto que después de considerables distensiones su normalidad se restablece pronto. Después de los veinticinco años comienzan las transformaciones regresivas de los tejidos que los conducen progresiva e insensiblemente a la rigidez característica de la edad avanzada; el tejido conjuntivo aumenta, esto varía de una persona a otra, hay quienes envejecen más pronto y frecuentemente el infantilismo se agrega al envejecimiento.

Después de los veinticinco años, la mayoría de las primíparas muestran diferencias clínicas manifiestas en el desarrollo del trabajo en relación a mujeres de menor edad. En este caso tenemos que considerar como un factor bien acreditado en la falta de elasticidad de los tejidos, la edad. Kashdan en mil parturientas de la clínica de Munich, la duración del trabajo encontró que aumentaba en la siguiente proporción:

Años	Horas
de 28 a 30	21
de 31 a 35	26½
de 36 a 45	28½

Las primíparas jóvenes tardaron generalmente diez y ocho horas. La rigidez de las partes blandas, provoca según Doderlein, la rotura prematura de la bolsa de las aguas en un 25 por ciento de los casos, y los desgarros perineales graves ocurren en un 10 por ciento, y leves en más de un 30 por ciento.

La rigidez de las partes blandas y el agotamiento de la parturienta que es la consecuencia, así como el obstáculo a la progresión del feto, son lo que determina el mayor número de intervenciones tocológicas. Kashdan encuentra que todo esto aumenta con la edad, con la aproximación a los treinta y cinco y cuarenta cinco años:

Años	Se registran de intervenciones por ciente
de los 28 a los 30	8
de los 31 a los 35	15
de los 36 a los 45	20

El período del alumbramiento es muy afectado por la resistencia de las partes blandas tanto en las jóvenes como en las añosas; el útero se agota ante la resistencia de los tejidos, el feto estando ya rota la bolsa de las aguas corre el peligro de morir por asfixia debida a la reducción de la implantación placentaria y con ella la disminución de la superficie respiratoria del feto. Esta disminución de la superficie respiratoria, dice Doderlein, es la causa principal de las dificultades que sobrevienen al niño, en segundo término figuran las complicaciones por torción o compresión del cordón si la expulsión se alarga; según una estadística de Seitz, que comprende mil casos, si el período expulsivo pasa de una hora, 3.2 por ciento de fetos estan asfícticos; de una a dos horas 5 asfícticos y 1,4 muertos; de dos a cuatro horas, 10 asfícticos y 1,5 muertos; de cuatro a seis horas, diez y ocho asfícticos y 3,6 por ciento muertos y más de seis horas, 25 asfícticos y 6 por ciento muertos.

Estas cifras, asegura Doderlein, comprueban el peligro de la asfixia y muerte del feto con la prolongación del período de expulsión y dan una medida numérica de la importancia de las dificultades de las partes blandas y de su peligrosa influencia sobre el feto. Agréguese lo peligroso de los embarazos gemelares cuando hay resistencia de las partes blandas y de su frecuencia en las primíparas de edad, en relación a las jóvenes.

La falta de elasticidad del cuello uterino, la rigidez anatómica, cuello en hilo de Fochier, imposibilita el progreso del feto, y si los dolores continuan con fuerza, el segmento inferior del utero corre el riesgo de romperse; las otras variedades de rigidez, edematosa relacionada a la estrechez pélvica, la inflamatoria, la cicatricial, estamos familiarizados con ellas, sabemos evitar las y en la estrechez resolver el caso con anticipación.

La indistensibilidad de las partes blandas, se manifiesta por la prolongación del período expulsivo, el orificio uterino borrado, la cabeza desciende en la pélvis, pero el segmento superior de la vagina y la entrada a la misma, impiden el avance fetal. Hace muchos años Couvelaire, Pozzi, y algunos otros más, señalaban la estenosis anular del tercio superior de la vagina, refiriendo esta alteración del tejido a las anomalías del infantilismo. Una vulva demasiado chica y una vagina más estrecha que lo corriente, son obstáculos que ocurren con mucho mayor frecuencia que la que suponemos. Si la bolsa de las aguas se conserva, la rigidez del conducto cervical, la falta de dilatación del orificio uterino y la inextensibilidad de la vagina, no tiene trascendencia inmediata sobre el feto, solo si transcurre largo tiempo o la bolsa se rompe, empiezan para el niño los inconvenientes.

Hasta época reciente, los autores alemanes, principalmente, insisten como la inextensibilidad de las partes blandas, echan a perden un pronóstico excelente, en un parto en que la pelvis, la presentación, la ausencia de lesiones en el conducto genital, daban la certidumbre de que todo iría bien, refiriéndolo esencialmente a las primíparas añosas; en las mujeres jóvenes, se continúa olvidando como los tejidos suelen envejecer prematuramente. Y la rigidez de las partes blandas, dice Dorderlein, acarrea las mismas dificultades que en otros casos produce la estrechez pélvica.

(TO BE CONCLUDED IN NEXT ISSUE)

Nearthrosis Following Comminuted Fracture of the Elbow Joint

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THE methods generally employed in the treatment of comminuted fractures of the elbow joint have not so far produced encouraging results, particularly if the fractures are compound. This is to some extent due to inadequate first aid, especially in rural districts. In the course of the last few years I have had the opportunity to treat two fractures of this kind, previously treated in other hospitals, both representing *ankylosis of the elbow joint* and also *pseudarthrosis of the lower end of the humerus.* Operative treatment of this condition takes a long time, and the results obtained are usually unsatisfactory.

Our method of procedure was, in these two cases, to convert the pseudarthrosis, which was just above the elbow region, into a nearthrosis for the purpose of effecting motility, while the ankylosed elbow joint was left untouched.

In both cases satisfactory functional results were obtained within a very short period of time, and both patients were able to resume their former occupations.

CASE REPORTS

Case 1. M., aged 28, policeman. On Mar. 30, 1939 he received a gunshot wound in his elbow which splintered the bone and opened the joint cavity. As to the previous treatment he received, we only know that he soon started running a temperature and had to be operated on —*apparently for the second time*—, that rubber drains were introduced into the wound and detached bone particles had to be removed. He wore a plaster-of-Paris splint for some time. On Oct. 22, 1939 he was admitted to my department. He presented a *pseudarthrosis just above the elbow joint with detached bone splinters. The elbow joint was perfectly ankylosed in 90 degree flexion.*

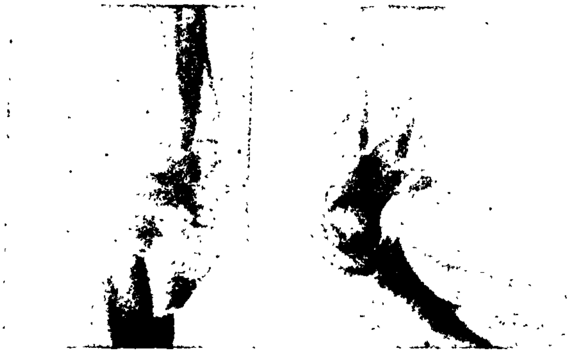

Fig. 1 (*a* and *b*). *Case 1.* X-rays of elbow taken immediately after accident resulting in comminuted fracture of the elbow joint.

On October 26, 1939 we removed a strip from the fascia lata and placed it in sterile saline. By posterior incision into the joint, the lower part of the humerus was exposed. The bone particles, which were only attached to each other by fibrinous material, were removed. The lower extremity of the humerus, which had lost both condyli, was then slightly sharpened, the periosteum scraped off and the flap of fascia sewn around the bone. The lowest point of the humerus just touched the distal fragment. The joint itself was not touched. *After instillation of 4 gr. of sulfanilamide,* a retentive dressing was applied. A fortnight later the plaster-of-Paris splint was removed. The patient was encouraged to try active motions. Biceps, as well as triceps, showed normal function. At a later stage, passive movements, avoiding pain, were cautiously tried. After three months the entire range of active motion was 50 degrees, while passively 70 degrees were reached, and the patient was able to resume his duty as a policeman. The function of the joint constantly improved, so that after a year, flexion was possible up to 90 degrees.

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* From Surgical Department B, Hadassah University Hospital, Jerusalem, Palestine.

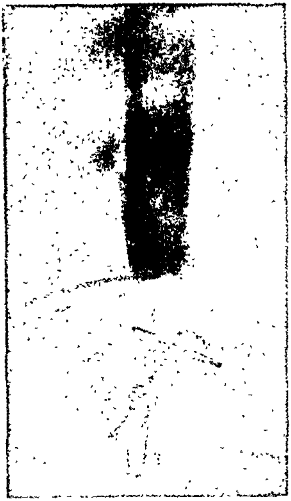

Fig. 2. X-ray of elbow joint following institution of drainage. (Same case.)

Follow-up examination in 1942 showed active extension up to 180 degrees, active flexion to 80 degrees, all muscles well developed. Only if the arm is left hanging down and involuntary innervation eliminated, wobbling motions are possible. As soon, however, as the innervation of biceps or triceps sets in, lateral movement becomes impossible. Pronation as well as supination are disturbed. The arm is shorter than the other by 4 cm. For a considerable time the patient has again been working at his original profession. He is fully able to do everything required by his duty as a policeman (shooting, riding, drill).

Case 2. W., aged 45, locksmith. On Apr. 30, 1939 he received a compound fracture of the humerus in a motor car accident whereby the elbow joint was exposed. In another hospital the patient was operated on (bolting and wiring of the humerus). Twice he wore a plaster-of-Paris splint, each time for three months. On Jan 17, 1942 he was admitted to my department. He presented a normally healed wound of the soft tissues in the elbow region. The joint was ankylosed in a position of 100 degrees flexion. Neither active nor passive movement was possible. The ankylosis,

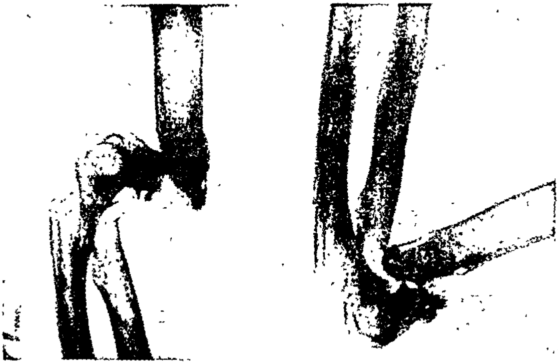

Fig. 3 (*a* and *b*). X-rays of elbow joint showing [illegible] (Same case.)

judging from the x-ray appearance, was of the osseous type. Just above the elbow joint a pseudarthrosis had formed, within which passive flexion and extension up to 5 degrees was possible.

On January 10, 1940 the lower end of the humerus was exposed by lateral incision. Bolts and wires which were found there were removed. The lower end of the humerus, after having been slightly sharpened, was wrapped into a flap of fascia lata in the same way as outlined in *Case 1*, and the pseudarthritic gap widened. Sulfanilamide powder was then introduced, the wound closed and the arm placed in a plaster-of-Paris splint. The wound healed by first intention. Subsequent treatment consisted of the same measures outlined in *Case 1*. The motility of the joint improved constantly.

Follow-up examination in 1942 revealed active extension up to 150 degrees. The muscles were normal, though supination as well as pronation were somewhat hampered. Although working the whole day as a locksmith, the patient had no pain.

Unfortunately, a complete series of x-rays can only be given for *Case 1*, where Fig. 1 (*a* and *b*) (taken immediately after the accident) and Fig. 2 (taken after drainage of the joint) were kindly placed at my disposal. The last x-rays of this series were taken in our hospital, when the patient came in for a follow-up examination (Fig. 3 (*a* and *b*)). They show the joint in active flexion and extension. In Fig. 4 (*a* and *b*) the patient is performing active flexion and extension. The striking muscular strength of both biceps and triceps is clearly visible on the pictures.

CONCLUSION

In two cases of comminuted fracture of the elbow joint, with resulting ankylosis of the elbow joint and pseudarthrosis of the lower end of the humerus, a nearthrosis was successfully formed out of the pseudarthrosis.

SUMARIO

Dos casos de fractura en pedazos (conminución) en la articulación del codo, resultando en anquilosis de la juntura y seudo-artrosis del extremo inferior del húmero, son presentados.

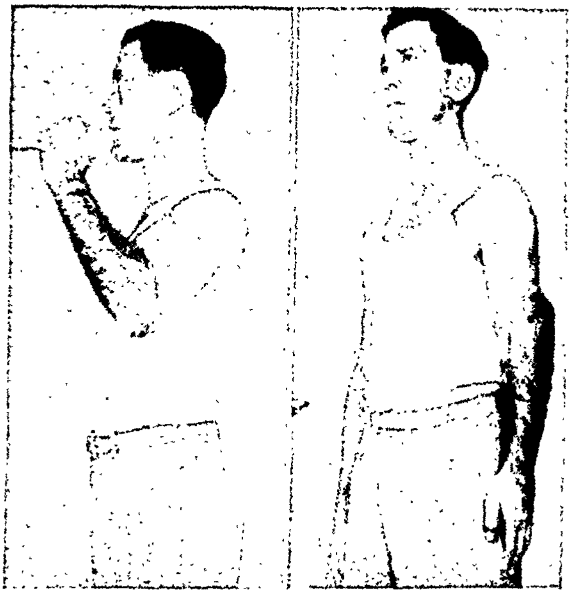

Fig. 4 (*a* and *b*). Patient performing active flexion and extension. (Same case.)

En ambos casos neartrosis fueron ejecutados con éxito y con deshecho de la suedo-artrosis.

RÉSUMÉ

L'auteur rapporte deux cas de fracture du coude avec braiement. Les deux cas furent suivis d'ankylose du coude et de pseudoarthrose de l'extrémité inférieure de l'humérus. Dans les deux cas, une néarthrose fut crée au siège de la pseudoarthrose.

Выводы

Здесь представлены два случая раздробленнаго перелома локтевого сустава с образованием анкилоза локтя и ложнаго сустава нижняго конца плечевой кости. В обоих случаях новый сустав был успешно образован из ложенаго сустава.

Thoracic Injuries in Combat Zone*

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THORACIC injuries which occur in the combat zone may be due to a number of causes: (a) bullets from machine gun, rifle or revolver; (b) fragments and shrapnel from shells (artillery and trench mortars), torpedoes (aerial and marine), bombs, grenades and mines; (c) falls from explosions and direct injury by falling débris; (d) bayonet and knife wounds; (e) blast injuries and immersion blast injuries; (f) recoil of large guns; (g) crushing injuries.

Such thoracic injuries are serious and the mortality is high. In the first World War, examination of the dead on the battlefield showed that approximately 37 per cent had chest wounds (Sauerbruch). The American Expeditionary Force (1917-1918) reported that the incidence of thoracic injuries in front-line hospitals and stations was 5.6 per cent, and the mortality rate of patients admitted with wounds of the thorax was 24 per cent. Eloesser in reviewing injuries of the chest received in the last war stated that the incidence of this type of injury given by the British was 3.8 per cent, the Germans 6.2 per cent and the Russians 7.8 per cent. Early mortality among those that escaped immediate death is estimated between 22 to 25 per cent. This emphasizes the importance of training the medical officers that are to be assigned to sea duty, casualty clearing stations, dressing stations and field hospitals. Intelligent first aid and early treatment while the battle is in progress is necessary to decrease this high rate of mortality. Early evaluation of symptoms and immediate and proper treatment are essential to save life.

Early recognition and evaluation of the extent of the injury depends mainly on a thorough knowledge of the anatomy and physiology of the cardio-respiratory system. Any serious interference with the cardio-respiratory system must be corrected immediately, if possible. Unnecessary delay in treatment may increase shock and hemorrhage. The facilities available on the field of battle in advanced battle stations are limited and thoracotomy cannot be undertaken, not only because of the lack of surgical facilities, but also due to the lack of pressure anesthesia apparatus.

Tracheal intubation anesthesia has reduced mortality of open chest operation, but its use aboard ship in time of battle or on the battlefield is not feasible or practicable. This serious handicap limits the application of surgical principles at a time when surgery is urgently needed.

However, there are many fundamental principles that may be applied in the most advanced battle stations and aboard ship in time of battle that will decrease mortality. The most important indication for immediate treatment in chest injuries is the relief of cardio-respiratory embarrassment. The conditions contributing to cardio-respiratory embarrassment are [illegible] (th sucking wound of open pneumothorax and the closed pressure pneumothorax), hemothorax, hematopneumothorax, mediastinal emphysema, cardiac tamponade, massive collapse of lungs, atelectasis and paradoxical respiration from a crushing injury.

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*Presented at the Fourth International Assembly of the International College of Surgeons held in New York, June, 1943.

The fundamental principles of treatment of war wounds are applicable to chest wounds as well as elsewhere, namely, the control of hemorrhage, administration of plasma for treatment of shock, morphine to relieve pain and allay apprehension, wound débridement, removal of foreign bodies and implantation of sulfanilamide in the wound as well as parenteral administration of the drug to control infection. Eloesser states that local treatment in injuries of the chest may take precedence over general treatment because the functions of the heart and lungs are so vital that their disturbance may in themselves be the cause of shock.

CLASSIFICATION

Thoracic injuries may be classified into three groups: The first consists of the severe type of injury that causes immediate or early death. It is the result of extensive wounds of lungs and heart, wounds of large vessels, severe crushing of chest wall and severe blast injuries. The mortality in this group is extremely high and few reach first aid stations alive. The second group consists of less severe cases and may be saved by early adequate treatment, early transportation and definitive treatment at a later date. The simple methods may not be adequate and radical procedures may have to be employed. It is in this group that ability and judgment may save many. The third group consists of cases that suffer from injuries that are not severe, and recovery may take place in spite of lack of treatment or delay in treatment. In such cases, the simplest procedure is usually sufficient to meet the necessary requirements.

TREATMENT

Open pneumothorax (sucking wounds) causes: (1) mediastinal flutter with serious circulatory phenomena and diminished cardiac output; (2) "Pendelluft" phenomena (Brauer); see-saw of air between the wounded side and the sound side of the lungs; (3) partial local anoxemia; (4) collapse of one lung with loss of breathing space. Treatment consists of immediate closure of the wound after the above-stated surgical principles have been applied. Closure may be performed by suture, occlusive dressings, adhesive plaster, etc.

Closed pneumothorax (pressure or tension pneumothorax) is caused by injury to lung or bronchi or a cutaneopleural fistula which permits the air to enter the pleural cavity, but impedes its escape. This condition is more serious on the right side because the right heart and great veins are more sensitive. Treatment: Aspiration of air by any available method will give temporary relief in an emergency.

Hemothorax and hematopneumothorax are often present together. Hemorrhage from wounds of the large vessels of the hilus are usually fatal. Lung hemorrhage may stop spontaneously due to low pressure in pulmonary arteries. Hemoptysis is usually present. Injuries of the internal mammary artery may result in serious hemorrhage and ligation of the vessel is indicated to prevent fatality. Hemorrhage from the intercostal vessels is often persistent but rarely fatal. Exposure and ligation of vessels are necessary. If bleeding from laceration of the lung persists, suture, lobectomy or even pneumonectomy may be advisable. Massive bloody effusion requires slow aspiration. The quantity of blood removed should be replaced by an equal amount of air to prevent rapid expansion of the lung and produce recurrence of hemorrhage. If the fluid level does not reach above the nipple and there are no signs of cardio-respiratory disturbance, it is best not to asperate but observe for several days.

Mediastinal emphysema is the result of a tear in the bronchi or trachea from a wound or crushing injury. It is rarely caused by a rupture of the lung. Air escapes to the mediastinum and later makes its appearance in the suprasternal notch. Its crepitation is synchronous with the heart beat. It is a much more serious complication than subcutaneous emphysema which starts in the vicinity of a lung injury and may spread over a large area. If mediastinal emphysema causes cardio-respiratory disturbance, incision should be made in the suprasternal notch and blunt dissection with the finger is carried downward until pressure is relieved.

Cardiac injuries are usually fatal. If the patient survives and circumstances permit, operation to suture the knife or bullet wound may save life. If the symptoms of cardiac tamponade are not serious, slow and partial aspiration may be performed after several hours have elapsed. This may be sufficient to relieve tension within the pericardial sac. The symptoms of cardiac tamponade are low blood pressure, faint heart sounds, thready pulse, cyanosis and engorgement of veins of neck.

Injuries to the chest wall are the result of contusions, lacerations and fractures. The most serious of chest wall injuries are those caused by crushing injuries or recoil of large guns. If the injury is very severe, the mortality is high. Flail chest with multiple fractures of many ribs, damage to thoracic wall and paradoxical respiration impairs the intake of air. The following findings are characteristic—marked dyspnea, crushed side of chest sinks in on inspiration, breathing is mainly abdominal, paradoxical motion is increased and respiratory embarrassment becomes severe. Treatment consists of controlling hemorrhage if present and stabilizing the chest wall by applying clips to ribs and secured to overhead frame. Sand bags to chest or small respirator may be used.

Atelectasis and massive collapse of lungs are not infrequent complications in thoracic injuries. The presence of foreign bodies in the bronchi must be kept in mind, and if circumstances permit, bronchoscopy should be undertaken.

Esophageal and thoracic duct injuries are rare. Esophageal injuries also carry a high mortality (70 per cent) as a result of mediastinitis. Immediate operation is indicated to repair esophageal wounds and drain the mediastinum. In cases of injury to the thoracic duct, repair of the laceration or ligation of the severed ends are indicated.

In abdominothoracic injuries, except for arrest of hemorrhage and closure of sucking chest wounds, abdominal injuries demand precedence in surgical treatment.

Contusion of the lungs, traumatic asphyxia, subcutaneous emphysema, and blast injuries seldom require surgical intervention. Conservative treatment is usually sufficient: rest, sedatives, perhaps oxygen inhalation and treatment of shock if present. Blast injuries are the result of detonation of high explosives and cause sudden compression of chest by exploding gases. It is a pressure wave of high velocity and short duration (0.006 second) which is followed by a longer wave of negative pressure (0.03 second). The critical distance from the center of the detonation of high explosive in the air is about 20 feet. The critical distance is increased about four times if the explosion is under water. Atmospheric blast injuries chiefly affect the lungs; immersion blast injuries, the abdominal structures, with secondary effects in the bases of both lungs and central nervous system. Severity of the injury depends on the severity of the high explosive, the distance from the center of detonation and the position of the individual in relation to that center. If the individual is near the critical distance, sudden death takes place without evidence of external injury. If the patient survives, the symptoms are often severe — profound shock, hemoptysis, dyspnea, air hunger, cyanosis, frothy bloody sputum and not rarely traumatic asphyxia. Conservative treatment is advisable—absolute rest, oxygen, plasma and sedatives in moderation.

Physical prophylaxis in the form of light armor or plastic material as a protection against abdominal and thoracic injuries may be useful. At present, considerable interest and study are being applied in that field for the improvement and advancement of this type of prophylaxis. The use of steel helmet by the French Army in the last war reduced the incidence of cranial wounds from 15 to 3 per cent.

Admiral Chambers of the Medical Corps, after a recent inspection of the hospitals in the Pacific area, stated that the mortality rate among the wounded naval and marine personnel was approximately 1.5 per cent. The most important new factors in markedly decreasing mortality in this war are plasma to combat shock, sulfa drugs to combat infection and air transportation of the seriously wounded from the battlefield to base hospitals. Severe thoracic injuries and head injuries if transported at high altitude do very poorly, due to disturbances of the cardio-respiratory system. This is especially true of closed pneumothorax. The expansion of air in the pleura at high altitude may cause death from mediastinal shift and anoxemia. Thoracic and head injuries and patients anemic from loss of blood should not be transported by air at altitudes higher than 4000 feet.

Complications and late treatment are not within the scope of this brief discussion.

SUMMARY

Thoracic injuries to American troops in combat zones during the first World War numbered 5.6 per cent of all wounded. Mortality among patients with wounds of the thorax admitted to front-line hospitals was 24 per cent. First aid and early treatment, which depend on a thorough knowledge of anatomy, are the two most important factors in decreasing mortality. Delay increases shock and hemorrhage. Prompt measures to relieve cardio-respiratory embarrassment are essential. In case of abdomino-thoracic injuries, abdominal injuries should be given precedence.*

SUMARIO

Daños-torácicos entre las tropas americanas en las zonas de combate durante la Primera Guerra del Mundo, numeraron un 5.6 por ciento de todos los heridos.

La mortalidad entre los pacientes con heridas torácicas admitidos a los hospitales de linea frente, fueron de 24 por ciento. Primeros auxilios y tratamiento temprano, que requieren un conocimiento competente de anatomía, constituyen los dos más importantes factores en la reducción de la mortalidad.

Dilación augmenta el choque y la hemorragia. Prontas medidas para remediar impedimentos cardio-respiratorios son esenciales. En casos de daño o lesiones abdomino-torácicas, las lesiones abdominales deben recibir prioridad en tratamiento.

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*The opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

RÉSUMÉ

Dans la première guerre mondiale les lésions thoraciques des troupes américaines représentaient 5.6 pour cent de toutes les plaies. La mortalité de ces blessés thoraciques admis aux hôpitaux de première ligne fut de 24 pour cent. Les facteurs les plus importants pour abaisser cette mortalité sont: (1) traitement précoce de ces plaies; (2) connaissance complète de l'anatomie de la région thoracique, externe et interne. Tout retard aggrave le choc et l'hémorrhagie. Il faut agir promptement, car il est essentiel de soulage l'embarras cardio-respiratoire. Dans les cas de blessures abdomino-thoraciques, il faut donner la précédence aux lésions abdominales.

Выводы

Грудные поражения среди американских войск в зоне сражения в Первой Всемирной войне составляют 5.6 процента всех раненых. Смертность среди пациентов с грудными ранами, которые были приняты в фронтовые лазареты, была 24 процента.

Два главных фактора в понижении смертности являются первая помощь и немедленное лечение. Задержка увеличивает шок и кровотечение. Очень важно принять быстрые мери к облегчению сердечно-дыхательных трудностей. В случаях брюшно-грудных поражений, брюшное поражение считается более важным.

GUILLAUME DUPUYTREN

(Continued from page 351)

ing the dates of his own work. Laennec showed his intellectual integrity on this occasion by rising in the Medical School Society and exposing Dupuytren. As a result of the affair, pathology suffered for a time, since both Dupuytren and Laennec abandoned the field.

In 1808 Dupuytren was appointed adjunct-surgeon at the Hôtel Dieu, a position which gave him power and opportunities beyond his dreams. These were enhanced by his marriage in 1810 with Mlle. Sainte-Olive, who brought with her a dowry of 80,000 francs. Let it be noted that his lack of concern for ethics was carried over into private life. Already engaged to the daughter of Alexis Boyer, whose dowry was a mere 50,000 francs, our rising surgeon wrote to Boyer, whose fame was eclipsed only by Larrey and Dupuytren, cancelling the contract drawn up between them at the time of the engagement.

After the death of Sabatier, in 1812 Dupuytren received the chair of Operative Surgery at the Hôtel Dieu, although it seems that the examination was not unprejudiced—three of the five judges retiring and leaving two to render the decision in Dupuytren's favor.

During the siege of Paris in 1814 Dupuytren again had experience in war surgery, although these brief experiences caused Larrey amusement when Dupuytren mentioned war surgery.

In 1814 Dupuytren became Surgeon-in-Chief at the Hôtel Dieu, where he reigned supreme until his death, the master, almost the dictator of French surgery.

At the Hôtel Dieu he personally watched over 113 beds, doing all minor operations and dressings. He was a tireless worker, possessing astounding energy, as his daily routine proves. From 6 to 11 A.M. he worked at the

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Army Rehabilitation*

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THE training battalions of today are essentially the same as of yesteryear—when we fought "to save the world for democracy." The ones today, we hope, have profited by the experience of those pioneers which set up the training battalions during World War I. They are based upon two main factors and are composed of two principal groups: namely, those who are handicapped physically and those handicapped mentally. The latter group, of course, is divided into those who are retarded by reason of actual mental underdevelopment, and those who are retarded because they have never had the opportunities offered to most of us today. It is indeed by far the hardest to obtain any useful results from the former. The latter having inherent natural mental resources, and much of the so-called "common sense," are easy to teach and they respond with exceptional rapidity. From this type of individual there is a very high percentage of salvage.

The Developmental Battalions of World War I were authorized on May 9, 1918, by the War Department, which provided for the formation of one or more development battalions in all large camps and cantonments. The division of physical reconstruction of the Surgeon-General's Office made a series of studies for the purpose of *determining positions* where soldiers with slight physical handicaps might be assigned to limited service duty. This was done with a view of freeing able-bodied men for full combatant duty. On September 9 the activities of development battalions, insofar as they related to the Surgeon-General's Office, were placed under the direction of the division of sanitation. There was established a group of medical inspector-instructors who traveled from camp to camp in order to put into effect uniform methods of organizing and administering the developmental work in these battalions. Twenty-seven camps were thus visited. Through the aid of these instructors, and of the circulars of instructions issued by the committee on development battalions, about fifteen camps evolved very efficient systems of training in their development battalions before the signing of the Armistice put a stop to the work. In these camps the men were rapidly classified and either promptly discharged as unfit for any military service or given courses in physical development. These courses were under the supervision of medical officers, with a view to putting them in better condition to perform certain military functions. Soldiers with venereal disease were kept in special companies in the development battalion and given intensive treatment until cured or found to be incurable. Colonel H. D. Corbusier, who was the medical officer in charge of this rehabilitation work at Camp Greenleaf, North Carolina, is to be commended for the excellent services he rendered in this work.

It will be noted that the development battalion of the first World War had 34.4

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* Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

per cent venereal cases. During the present conflict, venereal patients are all being handled under a special policy. There is at least one venereal disease facility centrally located in each service command. Uncomplicated gonorrhea and syphilis are receiving scientific and well-planned therapy. This is all directed from the venereal disease control section of the Surgeon General's Office.

Treatment has been responsible for the reclamation of over 90 per cent of gonorrhea cases and 100 per cent of the luetics. This latter, of course, after the cerebrospinal and complicated syphilitics have been separated from the service.

With a rapid mobilization of the Army, a number of individuals from the so-called under-privileged class and the physically defective were infiltrating into the Army. This necessitated that the War Department establish a testing ground for these handicapped individuals. The place was at the Branch Immaterial Replacement Training Center, Fort McClellan, Alabama. The representatives of the various branches were chosen as follows: Lieut. Col. Wm. L. Roach, Classification Section of the Adjutant General's Office, Lieut. Col. Barney Daughtry, representing the Infantry, and myself representing the Surgeon-General.

The experimental battalion had as its main objective to improve the status of the sub-standard, or those temporarily unfit, to determine how many could be reclassified. This objective was to be reached primarily by training methods and secondarily by medical or surgical procedures; the latter to be used only in cases proved to be beneficial to the government. From that original experiment we reclaimed 10 per cent. These were to be reclassified to general military service. The others we are certain were improved physically about 75 per cent and were made better soldiers by reason of their rehabilitation.

The period allotted to us to make men out of misfits was eight weeks. The plan of training was based on progression. This was to enable the largest number to gain self-confidence and thus endure more and more strenuous work as the training proceeded. Our intimate association with these physical defectives soon taught us what proved to be the greatest lessons we could learn: *First,* a very high percentage afflicted with physical defects are willing and anxious to help themselves. *Second,* nearly all were very low in self-confidence. *Third,* the lack of self-confidence was caused by self-pity. *Fourth,* there existed a peculiar indefinable condition best described as a mixture of psychoneurosis and hypochondriasis.

In planning our attack we made our first and heaviest wedge the development of self-confidence. This was accomplished by progression. If these men had been pushed in the beginning, I believe they would have failed. However, with kindness, insistence and a combination which I believe to be excellent—the line officer, the personnel consultant, and the medical officers—a large percentage developed splendidly.

One of the best technics for improving the body is physical education. Abraham Lincoln must have had some such idea in mind when he stated "I don't know who my grandfather was; I am much more concerned to know what his grandson will be." Yes, we should make and keep ourselves and the children of this democracy in perfect physical fitness—we should outmaster the "master race."

Precision drills or exercises develop coördination of mind and muscle. This coördination coupled with an acquired stamina is a chain that lacks only one link—mentality—a sound [illegible] in developing ment[illegible] ercises, carefully supervised can really work miracles. After approximately six weeks of training the under- and overweights were segregated. A special routine was established for them. The weight loss of those with excess weight was appreciable. However, the weight gain of the underweight was astounding! They gained 5.58 lbs. per man over a two-week period. Their weight gain over the first six weeks was 2.62 lbs. per man. The only medication they received was one tablet of iron, quinine and strychnine, three times daily. We felt that this feat of weight gaining was worthy of particular note.

Nearly every man in the development battalion gained in physical prowess. Each was measured, weighed and given physical tests at the onset and again at the termination of the training period. Our password to the "trainasium" commonly referred to as the "torture chamber" was *P E P*—Posture Expresses Personality. I have singled out the case that showed the greatest improvement as an example, although I can truthfully say that over 95 per cent showed remarkable progress in physical development. All of the apparatus was made from salvaged material (See Chart 1).

CHART 1.

PHYSICAL MEASUREMENT AND ATHLETIC ACHIEVEMENT CHART

Age: 35 Name: K. W. W.

Awarded trophy for showing most improvement.

Date: 7 July 1942		1 September 1942
Stripped weight:	148½	158½
Neck (normal)	13¾	15
Chest (deflated)	33½	37½
Chest (normal)	34¾	38¾
Chest (inflated)	37	40¾
Bicep (R. flexed)	12	13
Bicep (L. flexed)	11½	12½
Waist (normal)	28½	32
Hips (normal)	35	36
Thigh (R. flexed)	18¼	21¾
Thigh (L. flexed)	18¼	21¾
Posture	Fair	Good
Total inches Plus or minus		Plus 25 inches

ATHLETIC TESTS

Date: 12 July 1942		3 September 1942
1. Push-ups	9	15
2. Chinning	6	9
3. Standing broad jump	*6′9″*	*6′11″*
4. Spring, 50 yds.	8 seconds	7.6 seconds

One very important phase of the work in these developmental battalions is the rôle played by the classification consultant. However, I would like to state a few things concerning the mental development. Many of those inducted into the Army would have been acceptable military material in Civil War days; however, today they do not fit into the specialized mechanized fighting machine. They must first learn to read and absorb print. Some have very vague ideas of current events. One man stated he was confused—he had heard that the Kaiser was hung in 1918—now everyone was saying that Kaiser was building ships for Uncle Sam! Another, when asked the name of the President of the United States, parried with, "Would it be Gene Talmadge?"

Through the courtesy of Colonel Roach and Colonel Johannes of the Training Centers at Fort McClellan and Camp McCoy respectively, I have obtained the latest available figures referable to the rehabilitation and reclassification of their trainees. Fort McClellan is salvaging approximately 5 per cent and Camp McCoy 6 per cent. These are being reclassified 1-A. The figures regarding the under- and over-weights received from Fort McClellan are quite interesting. Twenty-five per cent correction was achieved on the underweights with a gain of 6.9 lbs. per man. Twenty-nine per cent of those overweight were reduced. They lost an average of 15.2 lbs. per man.

Realizing the debt that the people of this country owe the soldier, the Army is attempting to repay as much as is humanly possible through the facilities of the Medical Department. The policy of the Medical Department is to never let it be said, when referring to medical service, "Too little and too late." With that view in mind, the Army has established special treatment centers. These are located in general hospitals strategically situated at convenient and easily accessible locations over the country. These centers have been named and are located as follows (See Chart 2):

CHART 2.

GENERAL HOSPITALS DESIGNATED FOR THE SPECIALIZED TREATMENT INDICATED:

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a. *Chest surgery*

Fitzsimons	Denver, Colorado
Hammond	Modesto, California
Kennedy	Memphis, Tenn.
Walter Reed	Washington, D. C.
Brooke	San Antonio, Texas

b. *Maxillofacial, plastic and ophthalmic surgery*

Bushnell	Brigham, Utah
O'Reilly	Springfield, Mo.
Valley Forge	Phoenixville, Pa
Walter Reed	Washington, D. C.
Letterman	San Francisco, California

c. *Blinded casualties*

Letterman	San Francisco, California
Valley Forge	Phoenixville, Pa.

d. *Impaired hearing.* Defective hearing of a degree which precludes the return of a patient to duty.

Walter Reed	Washington, D. C.
Hoff	Santa Barbara, California
Borden	Chickasha, Oklahoma

e. *Amputation centers*

Bushnell	Brigham, Utah
Lawson	Atlanta, Ga.
McCloskey	Temple, Texas
Percy Jones	Battle Creek, Mich.
Walter Reed	Washington, D. C.

f. *Neurosurgery*

Ashford	White Sulphur Springs, W. Va.
Brooke	San Antonio, Texas
Bushnell	Brigham, Utah
Fitzsimons	Denver, Colo.
Hoff	Santa Barbara, California
Kennedy	Memphis, Tenn.
Lawson	Atlanta, Ga.
Lovell	Fort Devens, Mass.
McCaw	Walla Walla, Wash.
McCloskey	Temple, Texas
Nichols	Louisville, Ky.
O'Reilly	Springfield, Mo
Percy Jones	Battle Creek, Mich.
Schick	Clinton, Iowa
Tilton	Fort Dix, N. J.
Walter Reed	Washington, D. C.

g. *Vascular surgery.* Major vascular injuries and their sequelae such as arterio-venous fistulae, aneurysms and peripheral vascular disturbances such as chronic vasospastic conditions, those resulting from frost-bite, immersion foot, and other conditions producing peripheral circulatory deficiency states; but not including minor disturbances such as varicose veins:

Letterman	San Francisco, California
Ashford	White Sulphur Sprin W. Va.

These general hospitals have been e pecially equipped for specialized trea ment in addition to their regular work. Probably more important than instru ments is the man to use them. With that thought in mind some of the best in the profession have been obtained to supervise, direct and participate in this all-important work. I am sure that their names are familiar to all. There are such men as Bryan Blades, formerly Secretary of the American Association of Thoracic Surgery; Glen Spurling, formerly Secretary of the Board of Neurologic Surgery; Van Wagenan, formerly Professor of Neurosurgery at all of you know. In practically all of these centers the staffs are composed of national or even international figures in surgery. This all-important work is under the direction of members of the Medical Practice Division of the Surgeon General's Office. This division is being expertly handled with the utopian mixture of a high professional standard intermingled with a benevolent human understanding, under the direction of Col. Arden Freer.

The chiefs of the centers are not denied anything in the way of equipment. Their wish is law and one will find the best instruments and equipment in their hospitals. In order to obtain the best end results, conferences have been held in which the chiefs of a particular type of center met. Here they exchanged ideas hoping to take the best from all. This enabled them to standardize treatment insofar as is practicable.

In addition to the special professional personnel there has been obtained many who have special qualifications such as physiotherapists, etc. These are qualified experts in their profession—365 of these have been commissioned in the Army of the United States. In addition, especially qualified personnel have been hired to teach the deaf, the mute and the blind. In the treatment of the blind, it is important to establish a favorable state of mind. This type of casualty suffers an emotional shock that requires a very delicate psychological approach. A contact man, usually one blinded in the service, is used to encourage the newly blinded. This method does a great deal toward rehabilitating the blind and showing them that they have a valuable and interesting life ahead of them. Instructors experienced in work with the blind, especially technics such as Braille, have been obtained. This, of course, in addition to the diversional, recreational, and occupational therapy.

An individual losing his hearing also suffers quite a shock. Hearing aids will be furnished to those who have lost their hearing in line of duty. Instructors in lip reading are on the educational staff of these centers.

The adjustment of the soldier who has had an amputation is quite a serious problem. A temporary prosthesis is furnished and the soldier is taught to dress, to write, and to properly care for himself.

The orthopedic cases present a large group of patients for physiotherapy and occupational therapy. The physiotherapy includes baking, massage, whirlpool and exercise. Closely allied to physiotherapy is occupational therapy. Interesting creative occupations accomplishing the desired function may be carried on for lengthy periods—the patient virtually treating himself.

The actions or motions of the patient are actually medically prescribed. If a wrist is involved and it is desired that the patient should keep it in motion, an occupation requiring wrist movement is assigned as a medical prescription. There are many useful jobs that can be done and at the same time satisfy the necessary medical requirement of using the limb or joint. Such things as a foot-driven printing press, or a six-pedal loom for weaving, or a Potter's wheel—if possible, the production of something useful and the satisfying of the individual's hobby is the ideal to be sought.

Occupational therapy is very beneficial when directed toward the nervous and mental patient. If you leave this type of patient alone he spends all of his time feeling sorry for himself or dwelling on morbid ideas. An attempt should be made to adjust the job to his personality—make him a part of an operation which involves several people. Complex wood working is excellent. Such productiveness and association with other people prevents further mental disintegration.

Special rehabilitation problems confront the occupational therapist in teaching the blind. By progression and consideration they are taught to use a hammer, screw driver, saw, etc. The production of some useful article gives them an assurance that he can master an environment which is now strange because of the lack of sight. Special services are being made available which are equivalent to college and high school classes plus language courses which are taught by text and records. Educational movies are becoming very beneficial in this program for general education.

Nothing has been left undone in reference to the physical plant. An excellent example is the Forest Glen Annex of Walter Reed General Hospital. The convalescent soldiers call it "Holiday Inn." One of the beauties of this place is the main ballroom containing double-tierred balconies from which the less active men have a point of vantage to observe the games and other diversions that are planned for the men. Also looking down from niches under the great oak-beamed roof are some examples of the endless variety of statuary that did cast a cultural aura over the place when it was the National Park College, with its spacious and cultured 182 acres.

Needless to say that many of you noticed the preponderance of neurosurgical centers. These are staffed with highly trained neurosurgeons. The reason for such a preponderance of neurosurgical centers, as compared to the other specialties, is largely due to our anticipation of a great number of peripheral nerve injuries. Statistics of warfare show that 65 per cent of all casualties have injuries of the extremities. Approximately 25 per cent of these casualties will have nerve injuries of varying degrees. Therefore, this is considered a very important phase of rehabilitation and one in which excellent end results are anticipated. In addition to these anticipated casualties, there are a great number of neurosurgical problems such as nucleus pulposus, skull fractures, etc., presenting themselves daily in each service command.

CONCLUSIONS

1. Surgical rehabilitation of defects existing prior to induction should not be done by the Army in order that the man can be brought into the service.
2. Surgical rehabilitation is being done on men who are within the service when it is deemed necessary for the good of the patient.
3. Specialized training is necessary to rehabilitate the majority of individuals who have physical defects.
4. The team necessary to obtain the best results is a line officer, a personnel consultant and a medical officer.
5. The country owes the casualty a debt, and it is being paid in part through the activities of the Surgeon-General's Office in rehabilitating the wounded.
6. Specialists trained in rehabilitation, physiotherapy and occupational therapy are necessary to form an efficient rehabilitation team.

SUMARIO

La rehabilitación de las fuerzas armadas es discutida con las conclusiones siguientes:

1. Rehabilitación chirúrgica de los defectos existentes antes de la inducción militar no deberá ser efectuada por el servicio médico-miltar a fin de atraer el individuo el servicio

4. La mejor organización para obtener los mejores resultados consiste de: (a) un oficial de linea, (b) un personnel consultante y (c) un oficial médico.

5. La nación debe a los dañados una deuda que se está pagando en parte por medio las actividades de la oficina del Cirujano General en la rehabilitación de los heridos.

6. Especialistas instruídos en rehabilitación, fisioterapéutica y la terapéutica de empleo, son necesarias para la organización de un grupo eficiente de rehabilitación.

RÉSUMÉ

La réhabilitation des blessés est étudiée et les conclusions suivantes sont avancées: (1) La réhabilitation chirurgicale des conditions antérieures à l'enrôlement ne doit pas être entreprise par le corps médical de l'armée, afin d'apprêter la recrue pour le service. (2) La réhabilitation des hommes dans le service sera faite quand cela paraîtra nécessaire, pour le bien de l'individu. (3) Pour rémédier aux défauts physiques, il est essential que le malade soit sous les soins de chirurgiens et de médecins ayant subi un entraînement spécial. (4) L'équipe nécessaire pour obtenir les meilleurs résultats sera composée d'un officer, d'un consultant et d'un médicin militaire. (5) Le pays a une dette envers les blessés de guerre, et cette dette est payée en partie par les activités du *Surgeon-General's Office* pour le rehabilitation des blessés de guerre. (6). Il est nécessaire, il est essentiel de former des équipes composées de spécialistes entraînés spécialement pour la réhabilitation, de spécialistes en réhabilitation, en physiothérapie et en thérapie occupationnelle:

Выводы

Рассматривая вопрос военной реабилитации автор приходит к следующим заключениям:

1. В хирургической реконструкции *недостатков, существовавших до призыва в* армию, нельзя руководится только нуждами военной службы.

2. В хирургической реабилитации солдат на действительной службе необходимо *руководиться соображениями направленными* только к благу пациента.

3. Для успешной реабилитации большинства людей с физическими недостатками требуется специальная тренировка.

4. Для лучших результатов необходима комиссия состоящая из офицера связи, штатнаго консультанта и военнаго врача.

5. Государство имеет определенный долг по отношению к раненому. Этот долг частью выплачивается через реабилитационную работу Кабинета Главнаго Хирурга *Армии* (Office of the Surgeon General).

6. Для успешной работы реабилитационнаго состава необходима специальная тренировка в реабилитации и в физической и трудовой терапии.

ACKNOWLEDGMENTS

(Continued from page 352)

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(Continued on page 408)

Una Nueva Têcnica de Toracoplastia por Vía Axilar*

(A New Technic of Thoracoplasty through the Axilla)

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MÉXICO, D. F.

SUMMARY

This new technic of thoracoplasty through the axilla has the following advantages: (1) Wide exposition of the operative region, facilitating extension; (2) section of the muscles is reduced to the minimum, so shock is avoided; (3) sectioning of the ribs is facilitated, and (4) the scar is under the arm.

Hace seis años, al principio de los estudios que emprendí en el cadaver sobre cirugía toráxica; y estudiando con el maestro Don Darío Fernández los distintos procedimientos de torocoplastía propuestos para el tratamiento de la tuberculosis pulmonar y de los piotorax crónicos, el ideó una nueva técnica, por vía axilar, que trató de corregir las desventajas de orden técnico quirúrgico que pueda imputarse a las distintas vías de acceso a la planilla costal, inclusiva la de orden estético.

Hoy, después de haberla usado en varios años en que ha sufrido los retoques que las necesidades de la prática han impuesto, hago su publicación con autorización del Maestro Fernández, convencido de las enormes ventajas que en ella concurren.

El procedimiento operatorio lleva como idea fundamental la de exponer ampliamente la región operatoria, levantando todo aquello que a modo de tapa, cubre la porción torácica superior y hace poco accesible la primera costilla, que forma con el omoplato, la clavícula y la articulación del hombro, la clave de cualquier toracoplastía en el tumerculoso pulmonar.

La sección muscular, ampliamente compensada por la soberbia exposición, queda reducida al mínimo, lo cual es un factor importante para disminuir el choque y para conservar la mecánica fisiológica del miembro superior y disminuir la deformacíon post-operatoria.

La primera costilla queda a la vista casi en su totalidad y puede desarticularse desahogadamente como he podido realizarlo en algunos casos, y finalmente todos los peligros quedan por encima de la primera costilla, aislados por el separador; y la cicatriz quirúrgica queda oculta bajo el brazo en su posicíon anatómica.

TÉCNICA

Posición del enfermo.—Posición intermedia entre el decúbito dorsal y lateral, colocando un cojín entre el hemitorax que se apoya en la mesa y esta, con objeto de exponer bien la región en que se va a intervenir. Miembro superior en abducción forzada (que pas semisupinación.

Primer tiemp

tiendo del su

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* Presented at the Third International Assembly of the International College of Surgeons held in Mexico City.

inferior del pectoral mayor y la porción larga del biceps se dirige hacia abajo y atrás, pasando por la base de la axila para terminar rodeando la punta de la escápula.

Sección de la piel y tejido celular subcutáneo hasta descubrir la porción del biceps y el pectoral, hacia arriba; y hacia abajo la porción larga correspondiente del gran dorsal (Figs. 1 y 2).

Segundo tiempo.—Tomando entre dos pinzas un pliegue de la aponeurosis de la base de la axila, se da un tijeretazo valiente que deje penetrar facilmente al hueco de ésta.

Si se ha encontrado el plano correcto de desplegamiento, con toda facilidad y simplemente con los dedos se despega en todos sentidos y se rechaza hacia la parte superior el contenido vásculo nervioso del hueso axilar (Fig. 3).

Tercer tiempo.—Pequeña sección del gran dorsal bajo el ángulo de la escápula.

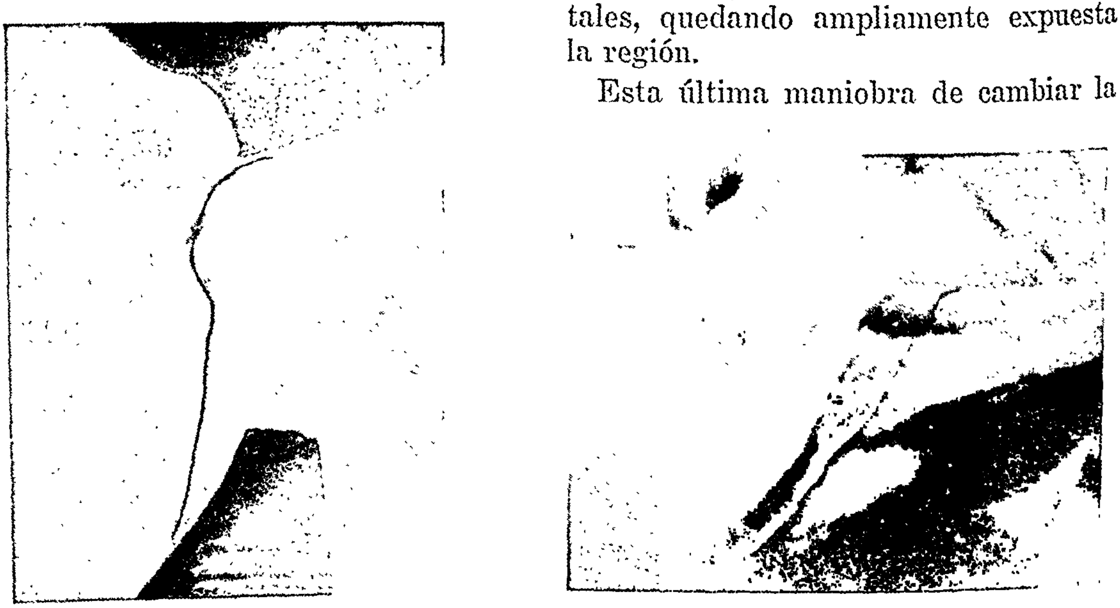
En estas condiciones puede calcularse si con solo ampliar el despejamiento se obtendría luz suficiente, si no es así se expondrá con el separador la cara anterior del pectoral mayor y sin separarse, hacia atrás, de su cara posterior, se secciona este músculo en dirección de la incisión cutánea y en la extensión que se necesite (habitualmente, no más de 2 o 3 centímetros). La dirección de este corte enteramente igual a la que de él hacen Fiolle y Delmas en la ligadura de la subclavia, no hace sufrir ni la inervación ni la nutrición del músculo.

Si durante las maniobras operatorias fuese necesaria una mayor exposición, bastará despegar el plano célulo-cutáneo de las formaciones subyacentes que deban seccionarse, sin cortar aquel (Fig. 4).

Cuarto tiempo.—Se continúa el despegamiento hacia adelante hasta los cartílagos costales desprendiendo las inserciones de ambos pectorales; y hacia atrás, hasta la columna vertebral, seccionando con las tijeras los pequeños nervios perforantes de los intercostales que se presentan.

En este momento cambian la posición del brazo aumentando la abducción y tirando de él hacia arriba; y luxando el omoplato, con unos cuantos cortes de tijera se desprenden las lenguitas del serrato mayor de sus inserciones costales, quedando ampliamente expuesta la región.

Esta última maniobra de cambiar la



Figs. 1 y 2. Trazo de la incisión y sección de la piel y tejido celular subcutáneo.

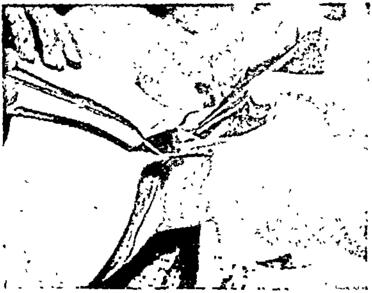


Fig. 3. El pliegue de la aponeurósis que cierra la base de la axila, tomando, entre las dos pinzas, ha sido seccionado y las tijeras, ampliando la brecha, muestran el plano de despegamiento.

posición es tan importante como lo es la mano izquierda del ayudante en la colicistectomía, pues si la posición no es correcta y mantenida no se entrega la región (Fig. 5).

Quinto Tiempo.—Resección costal en el orden que se quiera y en la amplitud del área costal que se necesite. Se puede desarticular la primera costilla en sus dos extremos.

Sexto tiempo.—Terminada la resección costal y asegurada una hemorragia absoluta, se retira el cojín, se abate el brazo y se suturan las pequeñas secciones del pectoral y del gran dorsal. Sutura de piel y tejido celular subcutáneo dejando un tubo de drenaje.

SUMARIO

La nueva técnica de toracoplastia por vía axilar tiene las siguientes ventajas: (1) Una amplia exposición de la región operatorio y facilidad para sí fuere necesario ampliar ésta; (2) las secciones de músculos quedan reducidas al mínimo con lo que evite grandemente el shock operatorio; (3) siendo el campo operatorio tan amplio se pueden hacer tantas resecciones de costillas como sea necessario, y (4) la cicatriz operatoria queda oculta bajo el pliegue del brazo.

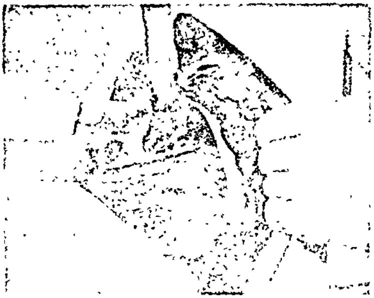


Fig. 4. El pectoral mayor y el gran dorsal separados, y el despegamiento casi completado, exponen ampliamente la región operatoria. El contenido de la axila con el tejido celular de ésta ha sido rechazado hacia arriba con el separador. Con toda claridad se aprecian la primera costilla, el tendón del escaleno anterior insertado sobre ésta, la segunda costilla y, en la porción derecha de la región, descendiendo el nervio del serrato mayor.

RÉSUMÉ

Cette nouvelle technique de thoracoplastie par la voie axillaire nous offre les avantages suivants:

1. Une large voie d'accès, permettant,

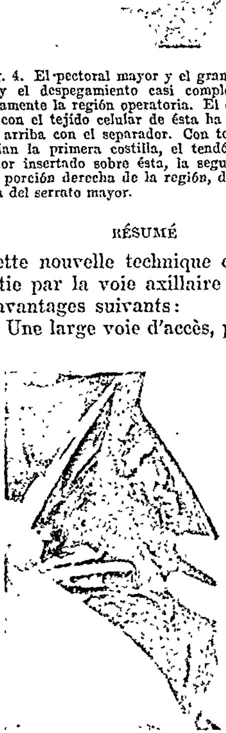


Fig. 5. La primera y [illegible] costillas han aisladas (subperió[illegible] [illegible]dad [illegible] la columna vertebral [illegible] respondientes, la [illegible] sostenidas es

si la necessité existe, l'extension désirée.

2. La section des muscles est réduite au minimum; le choc est ainsi évité.

3. La section des côtes est facilitée.

4. La cicatrice est sous-jacente au bras.

Выводы

Этот новый способ торако пластики путем подмышки имеет следующие преимущества: 1. Более широкое оперативное поле, 2. минимальное сечение мышц, что уменьшает шок, 3. более легкое рассечение ребр, 4. рубец скрыт под рукой.

GUILLAUME DUPUYTREN

(Continued from page 369)

Hôtel Dieu. Afternoons were given over to private practice and the clinics held several times a week, which were thronged by students and surgeons from all parts of the world. At 6 P.M. Dupuytren again appeared at the Hôtel Dieu, usually spending an hour there. It is a matter of record that this indefatigable surgeon never missed a day in twenty years. In addition he had an immense private practice, said to number 10,000 persons annually.

The position brought with it social standing. In 1816 Louis XVIII created him a baron and honored him with the Order of St. Michael. In 1820 Louis made the noted physician his consulting surgeon. In 1821 Dupuytren became surgeon to Charles X. He was likewise a member of the Academy of Sciences and Royal Academy of Medicine, and in 1824 became president of the latter.

Dupuytren was said to have amassed 4,000,000 francs, a fortune for those days. Let it at least not be said he was ungrateful. It is reported that following the dethronement of Charles X he offered to divide his fortune with the fallen monarch, who refused the 1,000,000 francs Dupuytren so loyally offered.

In 1833 on his way to the Hôtel Dieu he was stricken with apoplexy, but managed to get there and finish his lecture. It was soon discovered that he had a pleural effusion, but embittered and cynical, when urged twelve days before his death to try the benefits of thoracotomy, he refused. He died Feb. 8, 1835.

Dupuytren left his daughter, the Countess of Beaumont, 1,000,000 francs, and 200,000 francs were left to the Faculty of Medicine. This fund was used to found the Dupuytren Museum of Anatomy, housing his own personal collection.

Dupuytren the virtual dictator of French medicine and Dupuytren the man do not present us with an overly attractive portrait. This talented surgeon was an unsociable companion with overbearing manners. He simply did not know that he had a rival in France, his vindictive hatred of such men as Duméril and Velpeau causing him to persecute them. Jealous of others, he made mistakes he was eager to conceal. When mistakes did occur, however, he never lost his composure. Possessed of singular foresight, he had a clear mind and insatiable curiosity. He took a fiendish joy in finding fault with subordinates. He was not above lying and falsifying hospital records. Although very wealthy and meticulous in dress, he lived like a bourgeois.

It was at the bedside and in the amphitheater where Dupuytren shone. A shrewd diagnostician, he used all five senses to make a rapid but thorough examination. In his time anesthesia was unknown, so he had to be rapid, dexterous and agile. Because his talents out-

(Continued on page 408)

Abnormalities of the Female Genitalia

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THE purpose of this paper is to demonstrate the value of a proper understanding of the various abnormalities of the female genitalia, its practical application in the practice of obstetrics and gynecology, and to warn against unnecessary sterilization of women who may possess certain such abnormalities.

That a word of caution concerning the latter procedure is indicated was keenly impressed upon the writer's mind one morning when, after wandering into the operating room to see what there was of interest, he was deeply shocked when shown a "beautiful specimen of a didelphic uterus." That "beautiful specimen" had just been removed by the surgeon. The patient was a young married woman in her early thirties who had submitted to an operation in order to "have something done so that she might be able to have babies."

THE MÜLLERIAN DUCTS

To understand the manner in which abnormalities of the female genitalia develop, it is necessary to review briefly the embryology of the Müllerian ducts. Incomplete fusion of these ducts throughout the entire length of their canals or the rudimentary development of one of the ducts or any permutations of these "accidents" in development lead to almost all the abnormalities encountered.

Separate Müllerian ducts persist in all vertebrates below the level of *Marsupials*. These open into a permanent cloaca. In mammals fusion takes place in varying degree at the distal end. In primates complete caudal union gives rise to the normal uterus.

A groove in the thickened epithelium

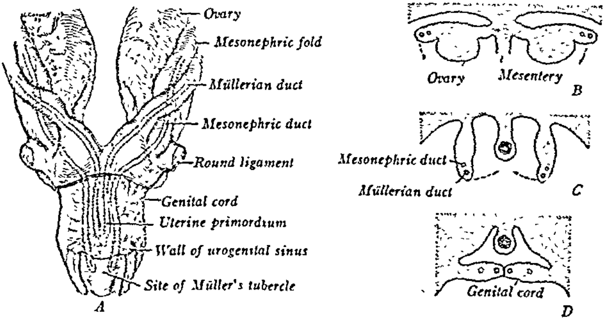

Fig. 1. Course of urogenital ducts and formation of the genital cord (A). Model at two months (X25).

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*The opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.

of each urogenital ridge as observed in the human embryo of 10 mm. is the forerunner of the Müllerian ducts.

This furrow is located near the cephalic pole on the lateral aspect of the mesonephros. It remains open at its extreme cranial end. More caudally, the lips of the groove close to form a tube. Thus, it begins as an epithelial inrolling, the solid blind distal end growing progressively in a caudal direction.

After entering the genital cord, the ducts fuse in the embryo at about nine weeks, terminating blindly at Müller's tubercle. A pair of female ducts develop in both sexes. At ten weeks, however, the genital duct of the opposite sex begins to degenerate.

Due to a crowding of the urogenital ridges toward the lateral aspect of the genital cord, the result of the enlargement of the developing suprarenal glands and permanent kidneys, the Müllerian ducts tend to bend at two distinct levels. This gives rise to three regions.

The unfused cranial (or longitudinal) portion of each duct develops into a Fallopian tube. The middle (or transverse) portion is the forerunner of the uterine fundus. In primates this portion normally is completely fused. The cervix arises from the distal longitudinal end. At sixteen weeks the uterus, cervix and vagina are recognizable as such.

At one time it was believed that the vagina originated from the most distal part of the fused Müllerian ducts. Most contemporary embryologists, however, are of the opinion that it develops from the entodermal epithelium of the urogenital sinus that invades the lowest level of the genital cord. This entodermal epithelium replaces the Müllerian epithelium wholly or in part.

The hymen arises at the site of Müller's tubercle from a disc of connective tissue derived from the mesenchyme of the genital cord. In due time it is covered on both sides by sinus epithelium and demarcates the vagina from the urogenital sinus. Usually, though not always, it becomes a perforate membrane.

Despite the fact that the greatest developmental changes in men and mammals take place while the embryo or fetus is still within the uterus, development continues even after birth. According to Arey[3] "only at about the age of 25 are the last of progressive developmental changes complete. Whereupon, the individual actually becomes adult."

COMPARATIVE ANATOMY (AFTER AREY)

Anomaly	*Usually Found in*	*Caused by*
Complete duplication of uterus and vagina	Monotremes and lower marsupials	Total failure of Müllerian duct fusion
Duplication of uterus but not the vagina	Most rodents	Arrest of uterine fusion

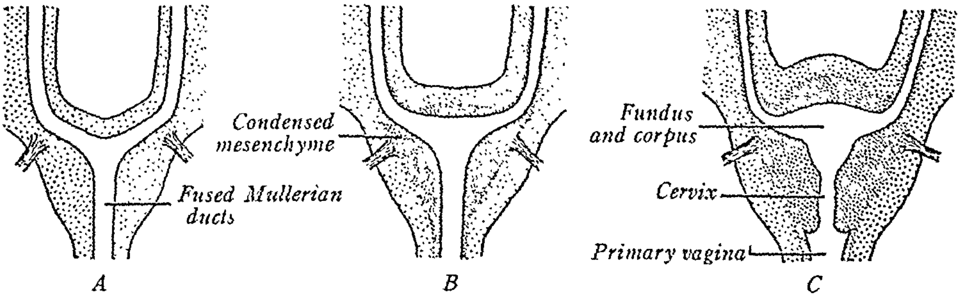


Fig. 2. Diagrams illustrating the further history of the fused Müllerian ducts within the genital cord.

Bipartite uterus	Carnivores and ruminants	Uterine primordia merge at lower ends, more or less separated by a median partition.
Bicornuate uterus	Sheep	Imperfect absorption of fundic segments leaving paired pouches at upper uterine ends.

Some of the rarer forms, such as the retention of the fetal or infantile condition, congenital absence of one or both tubes, of one uterine horn, of the uterus or of the vagina or of both may be associated with hermaphroditism of the external genitalia.

Gould and Pyle[35] cite a case of Brodhurst's wherein a girl developed signs of approaching puberty at the age of 4. The mons veneris became covered with hair. At 10 the clitoris was 3 in. long and 2 in. in circumference. This "girl," when 18, had well-developed mammae, "her" labiae descended laterally and expanded into folds resembling a scrotum. There was neither a uterus nor a vagina —a typical example of hermaphroditism.

Stalked or sessile vesicles (hydatids) on or near the osteal end of the tubes are common. Accessory Müllerian funnels, if retained and undergoing cystic change, produce one sessile type of hydatid.

DOUBLE UTERUS

This abnormality has been reported frequently.[93] Bicornuate, bipartite, duplex and double uteri are classified according to the extent of duplication. The varieties range from slight variation from the normal to two distinct uteri with separate appendages and double vagina. The didelphic uterus with a divided vagina is actually a duplex uterus or double uterus—each being a unicorn uterus more or less joined to its neighbor. Didelphic uterus associated with longitudinal closure of the vagina has been reported by Adam.[1]

The association of double uterus, double vagina, double ovarian supply and double vulvae has been observed. Wiart and Sureau's[95] case of double uterus was accompanied by a partial double vagina. Hewson's patient,[40] in addition to double uterus and double vagina, had duplication of the pouch of Douglas. The presence of a single cervix with double uterus is not too rare.

Hollander[41] reported a case of double uterus wherein one opened into the vagina and the other into the rectum. Usually, double uteri are situated lateral to each other. Occasionally, one may be anterior to the other and yet both may be served by a common cervix. In one case the anterior uterus had no adnexae but did possess lateral ligaments. This anomalous development may have been the outcome of excessive growth of one of the Müllerian ducts. This gives rise to the folding off of a portion which, in turn, becomes the anterior uterus.

A sufficient number of women with double uteri have been delivered safely of several children. It seems reasonable to conclude, therefore, that surgical removal of either one or both components of a double uterus is *not always* definitely necessary.

Perrigard[63] described a primipara with two distinct vaginae, two separate cervices and apparently two uteri. During the third month of pregnancy, he removed a thick vascular vaginal septum. Parturition continued to term and delivery was uneventful.

SUPERFETATION

The [illegible] much speculation on the p[illegible] [illegible] with a of a woman pregnant at the same time in both components of such a uterus is most interesting. One full-term child was born on July 16th and the other full term child on October 31st of the same year. Between each confinement the patient had what appeared to be three normal menstrual periods.

If unaware of the presence of an abnormal uterus, speculation on the part of the attendant would lead to the supposition that superfetation had taken place in a single uterus. In this case a septate vagina and double cervix led to the discovery of duplication of the uterus.

A half century ago, Article 312 of the Civil Code of France accorded a minimum of 180 and a maximum of 300 days for the gestation of a viable child.

How, then, could one explain a delay of three months in the birth of the second child if conception in each component of the uterus had taken place at approximately the same time? Such a delay would prolong the period of gestation in the case of the second fetus to twelve months—a most unlikely situation! It is more reasonable to assume that conception in the second uterus took place approximately two and a half to three months after that which began in the first.

It would be logical, therefore, to assume that this was a true instance of superfetation.

One must define superfetation in the human being as the implantation of a second fertilized ovum in a uterus already containing a pregnancy of at least one month's duration. In order for this to be possible three phenomena must take place—ovulation, fertilization and nidation.

Investigations conducted by Studdiford[91] led him to conclude that "maturation of the ovum takes place during human pregnancy but that this terminates in degenerative changes and atresia. No evidence could be found that (under such circumstances) ovulation actually takes place. It seems reasonable to assume that the pregnancy hormone through its degranulating effect on the basophile cells of the anterior pituitary (thus diminishing their production of gonad stimulating hormone) depresses ovarian function and prevents ovulation during pregnancy."

Usually, the corpus luteum formed during pregnancy inhibits the development of other ovarian follicles. Hence, it is reasonable to assume that superfetation (if it be at all possible) is not likely to occur early in a pregnancy.

Theoretically, it can occur only at a time when the corpus luteum has waned —around the fourth to the fifth month. Nevertheless, Ravano[70] has provided evidence to support the possibility of ovulation in the early months of an existing pregnancy. He found no less than 5 per cent of 100 pregnant women presenting signs of recent rupture of a corpus luteum.

Since the uterine cavity is not obliterated by the fusion of the decidua vera and the decidua reflexa until about the third month, fertilization of an ovum that has matured in spite of an already existing pregnancy theoretically should be possible. For the same reason, nidation as well is possible up to the third month. Such possibilities become more probable in the event that fusion of the decidua vera and decidua reflexa be delayed beyond the period when it "normally" takes place.

In view of these theoretical considerations Studdiford's conclusion that "we must consider the early reported cases of superfetation as misinterpretation" seems to be untenable. Although this phenomenon must be exceedingly rare and certainly difficult to prove in the case of a single uterus it is not so difficult to believe it possible in double uterus, especially if the cavity of the second uterus has not yet been completely obliterated by the fusion of the decidua vera and decidua reflexa that have formed in response to a pregnancy in the first uterus.

Menstruation from the nongravid double uterus may take place simultaneously from both members or appear from only one at a time.

Normally, it is true that menstruation ceases from the single uterus in the presence of an ectopic pregnancy. Also, a decidua vera forms within the nonpregnant uterus. One would expect, therefore, that menstruation would not occur in the empty member of a unilaterally gravid double uterus. Yet, the case of probable superfetation cited above had what appeared to be three apparently normal menstrual periods between the birth of her two infants. Murless and McLaughlin's[59] patient, described later, had "two showings of blood during the early gestation period." It is, of course, possible that these "showings" were not true menstrual flows, being instead the result of cyclical bleeding.

Soifer[87] described what appears to have been a true case of superfetation. While doing a Cesarean section on a uterus containing an eight or nine months' old fetus, he noticed that this gravid uterus was separated from another uterus situated on its left by a pronounced plica umbilicalis media. The second uterus possessed a normal tube and ovary. The plica umbilicalis extended downward from the umbilicus and served as a curtain between the two uteri. About twenty hours after the Cesarean section, a second fetus was found on the vulval pad. It measured 1¾ in. from crown to coccyx and appeared to have been dead no longer than seventy-two hours, judging from its well-preserved state. The living infant, delivered by section, weighed 7 pounds.

In 1927 Murless and McLaughlin[59] asking the question, "Does superfetation occur?" reported what they considered to be a possible case. Just three months after a patient of theirs had given birth to a normal male infant weighing almost 6 pounds, the same woman was delivered of a normal female infant that weighed 6 pounds and 13 ounces. The placenta obtained after the birth of the second fetus measured only 4 in. in diameter and was only ¾ in. thick. This patient, as noted previously, had two showings of blood during the early gestation period.

Instances of supposed superfetation have been reported by Buyalskiy,[17] Cassan,[18] Trapet[94] and others. Moench[57] added the case report of a woman who had given birth to a seven months' fetus and who, according to a midwife, passed a 4 months' fetus three days later.

Premature labor as regards the second product of conception is not uncommon.

In 1921 Radasch[69] published a comprehensive review of the reported cases of superfetation.

TRIPARTITE UTERUS

Gould and Pyle[35] cited a case report by Thilow describing a tripartite uterus—one that was divided into three small portions.

HERNIA OF THE UTERUS

Debierre[25] mentioned thirteen instance of herniation of the uterus in the right inguinal region and seven in the left. Gould and Pyle[35] referred to even rarer forms such as crural, umbilical and obturator herniation through the linea alba.

A cure by radical operation was obtained by Barbet[6] in a case presenting a recto-vaginal cloaca plus inguinal herniation of a hemi-uterus and its accompanying adnexae.

DIVERTICULUM OF THE UTERUS

According to Sussig[92]
mans call *"Divertikel*

— pregnancy in a diverticulum — was first described by Schickele.

Piskaceck's[66] definition rendered pregnacy in a previously existing diverticulum, which might be considered the only true type of diverticular pregnancy, difficult to substantiate as a distinct abnormal entity. He believed that such a classification can be made *only* when the diverticulum of the uterus contains both the fetus and the placenta.

Very few cases have appeared in the literature. A study of those described with sufficient detail leads one to consider them as instances of placental attachment in a secondary sacculation of the uterus rather than true diverticular pregnancy . . . if we accept Piskaceck's definition.[26, 27]

Sussig's patient aborted a six months' fetus. Abundant hemorrhage followed. Attempts to remove a retained placenta proved unsuccessful. After hospitalization, further attempts were made under general anesthesia. It was impossible to remove the placenta. Bleeding continued. It was then noted that the placenta seemed to be situated in what was considered to be a diverticulum of the uterus. Because the wall of this "diverticulum" felt so thin that manual perforation seemed imminent, abdominal hysterectomy was performed.

The extroflexion of the uterus was of the size of a large man's fist and its surface was traversed by veins.

The fibrous placenta was intimately adherent to the uterine musculature and could be removed only partially even after the uterus had been excised. The layer which remained adherent seemed to invade the musculature of the "diverticulum." The muscle tissue in the latter was brittle and spongy and reached a depth of only 2 mm.; whereas the musculature of the nondiverticulated part of the uterus was 3 mm. thick.

The pathogenesis of so-called diverticulum of the uterus is probably as follows: Placental attachment occurs at a site of atrophic mucus membrane. Decidual formation fails to take place normally at this area. The advancing chorionic villi invade the muscular layer directly and destroy some of the muscular bundles. This leads to thinning out and sacculation of the uterine wall, giving the appearance of diverticulation.

This view is borne out by pathologic findings as reported by Lehman[50] in a woman who died from hemorrhage following repeated unsuccessful attempts to remove an adherent placenta. The attending physician, after removing part of the placenta, entered what appeared to be a diverticulum arising from the right side of the fundus. He became alarmed, fearing that he had perforated the uterus, when suddenly he felt that his right hand was pressing against the anterior abdominal wall. Hospitalization followed soon after, but the patient expired before anything could be done in her behalf.

Upon microscopic examination of the uterus after necropsy it was noted that the villi of the placental site within the apparent diverticulum were well formed, but no sign of a decidua could be found. The spongy layer was absent. Villi extended down to the thinned muscular layer, being separated from the latter by a more or less wide layer of fibrin. In some places the villi were isolated between separate muscle fibers that stained poorly. They did not extend to the serosa nor did they perforate the peritoneal covering. Definite decidua formation was present in sections taken from the site of placental attachment to normally thick uterine wall.

Whether with a normal placenta there can be "diverticulum" formation from other causes remains to be decided. Lehman discussed a case of Schaeffer's which proved to be puzzling to him. A "diverticulum" was found in the pregnant right half of a duplex uterus. The bulging of the diverticulum was limited to the site of placental attachment. A decidua, however, was seen distinctly throughout the site of attachment. Furthermore, there was no evidence of penetration of the musculature by chorionic villi.

IMPERFORATE UTERUS

Gaucher[32] reported an extremely rare form of arrested development in a woman aged 44. Her uterus was solid, that is, no trace of a cavity was discernible. Nor was either tube patent.

Although the ovaries appeared grossly normal, menstruation had never appeared, even vicariously.

ABSENCE OF THE UTERUS

Mention of this abnormality appears frequently in the literature, even absence of both uterus and vagina.[20, 29, 37, 38, 60] Occasionally, one encounters citations of absent uterus, absent vagina and missing adnexae associated with some deformity of the bladder and kidneys.

In Parakh's[61] patient a large central kidney and one ovary were found, the uterus, both tubes, vagina and the other ovary being absent.

Cullen's[21] case lacked a uterus, vagina and a left kidney. The right kidney lay in the pelvis. Oddly enough, in view of the absence of the uterus, both tubes and both ovaries were present. The adnexae, however, were herniated into the corresponding inguinal canals.

The uterus in Dannreuther's[22] patient was dextroverted. The left tube, ovary, broad and round ligaments, kidney and ureter were congenitally absent.

A not uncommon finding associated with utero-vaginal abnormalities is a persistent urogenital sinus.[10, 90]

In 1863 Sedgewick[83] reported absence of a uterus in three out of five daughters of the same parents. Seven years later, Phillips[65] added the case histories of two sisters similarly afflicted.

ABSENCE OF THE CERVIX

Congenital absence of the os uteri, as noted in the second case reported by this author, has been described infrequently.[53, 54]

Mo[56] and Firket[30] have each encountered cervices that lacked a canal.

ABNORMALITIES OF THE VAGINA

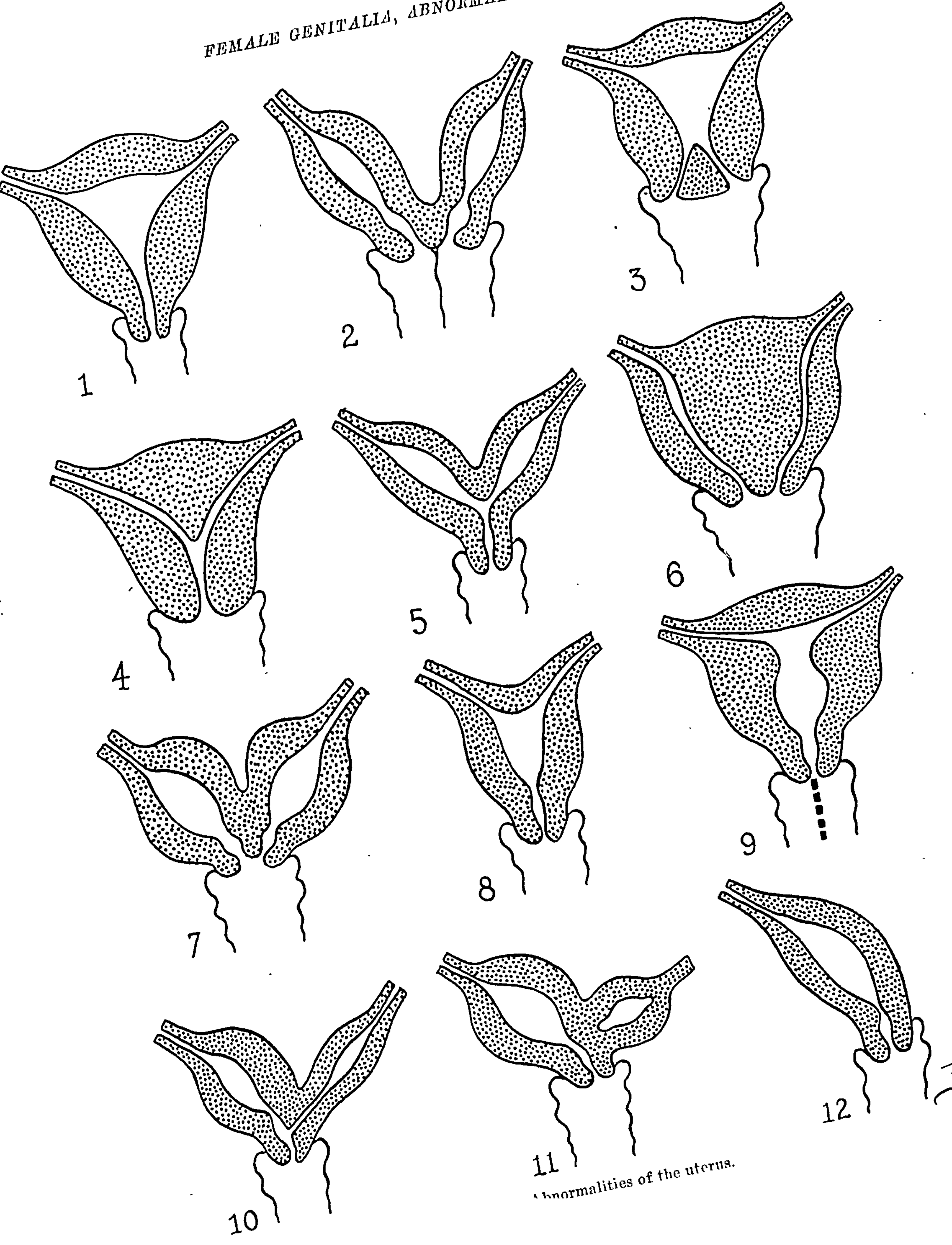
The vagina may remain partly or completely solid. Foreshortened vaginae, some only 1 in. long, are encountered infrequently. Complete absence is quite rare, but has been noted.[71]

A most singular case, authenticated by autopsy, was that of a girl of 20 in whom vicarious menstruation occurred regularly from the gums. This patient had no uterus, her vagina was closed and the vulvae were obliterated.[14]

Hahn[39] reported a case of vagina atresia wherein vicarious menstruation took place *per urethram*. Other instance of vicarious menstruation in patients with an atresia of the vagina have been recorded by Richardson,[73] Rubini[79] and Watson.[97]

Vicq d'Azir's patient[95] lacked a uterus, vagina and ovaries. No prostate could be found, nor was there any evidence suggesting male primary or secondary characteristics. Coitus took place through a markedly distended urethra which, oddly enough, was not accompanied by any urinary disturbances. Ferguson[2] mentioned copulation per rectum in case of his that lacked both uterus an vagina.

Hematocolpos may be present in t proximal portion of a partially so vagina. Baudet[8] described an anor [illegible] a de wherein the norm [illegible]



Abnormalities of the uterus.

gina led to the gravid component of a didelphic uterus. The other vagina was solid in its distal part. Between the imperforate area of the abnormal vagina and the nonpregnant member of the double uterus a marked hematocolpos existed. Such a swelling could lead to delay in the expulsion of the fetus by narrowing the birth canal.

Double vagina with an associated single uterus is not rare. The most frequent example is the result of a division of the vagina into two compartments by a septum that separates a blind pouch from the "normal" compartment, the latter leading to the single cervix.

True double or duplex vagina is usually associated with bipartite or double uterus. Hyde's case[44] had two cervices as well.

Although vaginal septae are usually longitudinal, occasional transverse septae have been noted. These proved to be either a hindrance to coitus or to lead to an irregular appearance of the menstrual flow. Until incised or excised they might well interfere with delivery.

Sanger[80] reported a supernumerary vagina that was connected with the normal vagina by a fistulous opening. He did not consider this to be the result of a patent Gärtner's duct. The latter, it will be recalled, is one of the tubules of the epoophoron running parallel with the Fallopian duct, the ductus epoophori longitudinalis. It seems, moreover, that Sanger's patient was a male hermaphrodite in whom androgenous characteristics were present. The genital organs possessed both male and female elements.

Bizarre situations arising from anomalous opening of the vagina into the rectum, the bladder, the urethra and even upon the abdominal wall have been recorded. Strick's[89] patient, congenitally lacking a uterus, had an anomalous vulvo-vaginal opening. Vulvar anus has been seen in association with closure of the vagina and bifid cervix.[76]

Emergence of the menstrual flow took place thru the anal orifice in a woman who, lacking an external vaginal opening, indulged in coitus per rectum.[62] When pregnancy occurred, forceps extraction per rectum effected delivery of the fetus. A similar case was reported by Bonnaine.[12] Hunter's[42] patient had double vaginal opening into the rectum. Delivery of a seven-month fetus was done per rectum. Copulation in the latter case was also per anum.

Gould and Pyle[35] cited a case report by Rossi from a hospital in Turin. An enormous tumor presented at the site where a vagina normally would have been. No opening was present. Upon incision the tumor was found to be a living infant. More detailed examination led to the discovery that the vagina opened into the rectum.

Opening of the vagina upon the abdominal parieties is extremely rare. Several cases have been collected by Le Fort (quoted by Gould and Pyle). Such an abnormal finding has never been known to be associated with a viable fetus.

FALLOPIAN TUBES

Congenital absence of both Fallopian tubes is rare. According to Chill[19] and to Spencer[88] recurring peritonitis with an accompanying lack of external signs of menstruation may be associated.

Deficient development of one or both oviducts is not too uncommon. Examples of this are the uterus bicornis unilater rudimentarius and the uterus with closed accessory horn.

Despite the presence of a canal in a proximately 80 per cent of rudimenta horns, they lack connection with t vagina.

Normal development of a tube [illegible] it. for failure to [illegible] uterus has been described by Bonnaire and Durante.[13]

Double lumen in otherwise normal Fallopian tubes has also been reported.[52, 55]

Peterson[64] has described a horseshoe tube; while Hüter[43] reported fusion of one tube with its opposite.

Congenital absence of a tube need not be associated, as claimed by Blot,[11] with rudimentary development of the ovary of the same side. In the second case, described by the author at the end of this paper, the left tube was represented by a fine fibrous band—practically a complete absence of the tube. Nevertheless, the left ovary seemed to be perfectly normal.

Multiple tubes have been described by Bovée,[15] Robinson,[74, 75] Victor,[96] Kossmann,[48] Knube,[49] Bab[5] and Le Lorier and Durante.[51] In most instances these were fused and adherent either to the ovary or to the uterus.

Supernumerary osteal openings in single tubes have also been reported.[45, 67, 72, 77, 78]

Hernia of the tubes has been seen infrequently.[4, 9, 58, 81]

Fuller[31] operated on a patient in whom an abnormal tube was found in a femoral hernia.

ABNORMALITIES OF THE OVARY

Complete absence of the ovaries occasionally occurs. The presence of only one ovary is not too rare. The level of secondary feminine characteristics, furthermore, does not necessarily parallel the degree of failure in ovarian development. Whereas a woman with but a rudimentary development of her uterus and ovaries was described as having none of the physiologic characteristics of her sex, other cases with similar anatomical defects were decidedly feminine and quite passionate besides.

Several types of supernumerary ovaries are known . . . the ovary succentauriatum, the accessory ovary, cases in which the ovary is divided by ligamentous bands and, lastly, entirely distinct supernumerary ovaries.

Debierre[23] described inguinal herniation of the ovary. Puech[68] collected eighty-eight such cases. Gould and Pyle[35] cite Otte's having seen bilateral crural ovarian hernia and a case reported by Haller and Borellus of double ovarian supply in a woman who had two uteri, two vaginae and double pairs of vulvae. The presence of a third ovary was noted by Sippel.[84]

Griffith[36] described a specimen in the museum of St. Bartholomew's Hospital in which the ovaries were located on the surface of the pelvic peritoneum. The uterus and vagina were absent. The pelvis, as was said to be usually the case, had some of the characteristics of the male type. In the discussion of Griffith's report Matthew Dincan stated that he had seen a similar case in which the vagina had measured not more than 1 in.

Displacement of the ovaries into the cul-de-sac of Douglas, against the vaginal wall or against the rectum may cause nausea during either coitus or defecation. If associated with malformations of the other genital organs, the presence of ovaries in vulvae that resemble an imperfectly fused scrotum may well be mistaken for evidence of hermaphroditism.

OTHER BIZARRE FINDINGS

Smyly[86] reported rupture of a horn in a two-horned uterus. Rupture of a gravid horn in a uterus bicornis unicollis with recovery after operation was described by Brugh[16] as well as by Gérin-Lajoie.[33]

Amputation of the right horn of a bicornuate uterus because of the presence of an abscess within this horn was followed by an uneventful normal pregnancy in the other horn.[2]

Menstrual distress has been noted frequently in association with abnormal uteri. Puech[68] has reported hematometra in the rudimentary horn of a unicorn uterus . . . Schwartz[82] hematocolpos, hematometra and bilateral hematosalpinx in a case of uterus subseptus with double cervix and double vagina. De Zilwa[25] added three cases of uterus bicornis associated with *unilateral hematometra*. Dysmenorrhea resulted from hematometra in the rudimentary horn of a uterus bicornis unicollis.[7]

KEY TO CHART OF ABNORMAL UTERI

1. Normal uterus.
2. Uterus duplex, bicornis with septate vagina.
3. Uterus subseptus unicorporeus with septate cervix.
4. Uterus subseptus unicollis (bipartite uterus).
5. Uterus bicornis unicollis (bicornuate uterus).
6. Uterus septus duplex (uterus bilocularis).
7. Uterus duplex, bicornis with single vagina.
8. Uterus arcuatus.
9. Normal uterus with septate vagina and double hymen.
10. Uterus bicornis, unilatere rudimentarius.
11. Uterus with closed accessory horn.
12. Uterus unicornis.

LABOR IN ABNORMAL UTERI

Surprisingly enough, labor in abnormal uteri is quite often uneventful. Among the obstetrical complications[85] that have been observed in addition to those previously mentioned is postpartum hemorrhage due to atonicity of the nonpregnant member of a double uterus. Poorly developed musculature may lead to rupture and usually is a cause of weak labor pains in such uteri.

Occasionally, the nongravid member may prolapse under the other and become incarcerated in the pelvis.

A uterine septum may impede contraction, tend to produce breech and transverse presentations, lead to weak labor pains, postpartum atony, rigidity of the *cervix and adherent placenta*.

Cervical septae may obstruct delivery in a most bizarre manner. In a case mentioned by De Lee and Greenhill[21] the fetus actually straddled the septum in the cervix. Before delivery could be effected, it was necessary to excise the septum.

The cervix of the nonpregnant member of a double uterus may be pressed down to the vulva as the descending head of the baby emerges from the pregnant component.

PROBLEMS OF LABOR (AFTER DE LEE AND GREENHILL)

Uterus subseptus unicollis	Placenta may be adherent to the septum
Uterus bicornis (duplex)	Abnormal pains, postpartum hemorrhage likely
Uterus bicornis unilatere rudimentarius	More serious than ectopic pregnancy if pregnancy occurs in the rudimentary horn.
Uterus bicornis (duplex) cum vaginae septum	Double pregnancy possible. Splitting septum seldom necessary. Do episiotomy on side on which baby lies. Do mid-line episiotomy if twins are present.
Uterus arcuatus	Most com [illegible] anoma ca [illegible] ran e [illegible] ta
Uterus with accessory horn	[illegible]

Uterus subseptus unicorporeus cum septate cervix	Child may straddle septum in cervix. Septum may need incision or excision to effect delivery.
Uterus septus duplex (uterus bilocularis)	Abnormal pains and postpartum hemorrhage likely.
Septate vagina with double hymen	May be necessary to cut the hymen being careful not to injure the rectum.
Uterus unicornis	Due to failure of 1 Müllerian duct. Normal pregnancy possible.

CASE REPORTS

UTERUS DUPLEX, BICORNIS, UNICOLLIS WITH SEPTATE VAGINA (*Case 1*)

A review of the obstetrical history of a young woman in her early twenties, that began in 1930 and to date has extended over a fourteen-year period, paints a graphic picture of the extent to which some women will bear up under the trials and tribulations sometimes associated with their efforts to have a family—the inherent right of all womankind. It is an eloquent argument against removing an abnormal uterus simply because it happens to be duplex in character.

On June 30, 1930 a dilatation and curettage for incomplete, spontaneous abortion in the third month of a pregnancy was necessary. At that time the septum in the vagina was first noted. It presented no difficulties other than to puzzle the examiner on his first attempt to do a pelvic examination to determine the condition of the uterus. The index and middle finger, it seems, entered the blind pouch to the right of the septum and it was impossible to palpate a cervix. This was later made clear when the patient was under anesthesia. Although the presence of a vaginal septum should have led to the surmise that an abnormal uterus was probably associated, the walnut sized mass to the right of the pregnant horn of a uterus duplex was interpreted as an ovary and not as the nonpregnant member of the double uterus. Apparently the normal ovary on that side was not palpable. No difficulty was experienced in passing the uterine curette directly into the cavity of the pregnant horn.

The salient features of her history from then on as noted in her case records are as follows:

1: 7/11/30—
Anteversion, anteflexion.

2: 7/21/31—
Mensis regular. Marked dysmenorrhea, premenstrual and first few days of period. Mostly in back. Retroversion.

3: 5/6/32—
Last mensis, 2/1/32. Uterus anteflexed but slightly retrocessed and sinuverted.

4: 9/17/32—
Delivered of seven months' premature fetus, 3 lbs., 11 oz. Baby expired the next day. Frank breech.

5: 11/19/32—
Considerable dysmenorrhea with frequent backache.

6: 3/11/33—
While in an oxygen tent because of lobar pneumonia, delivered of an eight months' premature fetus, 7 lbs., 14½ oz., breech. Baby expired 10 hours later.

7: 1/12/34—
Delivered of an 8 months' premature girl, 4 lbs., 9 oz. Frank breech. Baby lived.

8: 8/19/36—
Spontaneous, incomplete abortion. Uterus retroverted. Much backache. Pain in R.L.Q. of abdomen. Mass in the left side of pelvis, felt on bimanual examination, size of a walnut, considered to be the right ovary which was thought to be cystic. Recommended anterior suspension of the uterus and excision of the vaginal septum. Emptied uterus following day spontaneously.

9: 7/28/36—
Through a suprapubic midline incision, the abdomen was entered and the following abnormality encountered. A true uterus duplex with two distinct horns. Both horns were served by a common cervix. A normal tube emerged from the external aspect of each horn. There was no tube attached to the internal aspect of the horns. Two slightly cystic ovaries were situated in normal relationship to the fallopian tubes. The left was one-half the size of a walnut. The entire uterus duplex, (bicornis) was retrocessed into

the cavity of the pelvis but was not retroverted. Each component of the double uterus was about the size of a walnut. The appendix was 3 in. long, retrocecal and not bound down.

Before entering the abdominal cavity, the vaginal septum had been excised. At its external aspect the septum was about ½ centimeter in thickness. The septum became thinner as it approached its proximal attachment to the right side of the posterior surface of the cervix. The vagina was divided into two complete compartments . . . one leading to the cervix, the other to the right of the septum, being a blind pouch.

The appendix was removed. A Gilliam-Simpson suspension was done to correct the retrocession of the uterus duplex.

10: 6/1/39—
Spontaneous abortion in the second month of a pregnancy.

11: 10/15/42—
Delivered of a frank breech. L.S.A. 5 lbs., 14 oz. Baby alive.

This was her first full-term baby. This patient, despite her double uterus, has two live children. Of interest is the fact that she had two spontaneous abortions before the third month of pregnancy, three premature deliveries and only one full-term pregnancy. All of the fetuses were small and all were breech in position.

In each of her labors uterine contractions were strong and the pains were normal. At none was the removal of the placenta necessary.

ABSENT VAGINA, ABSENT CERVIX, ABSENT LEFT TUBE, "THUMB-NAIL" UTERUS *(Case 2)*

A single woman of 37 had never menstruated. Nor had there been any vicarious menstruation. There were no secondary male characteristics, her hips were well rounded, breasts well developed and the distribution of the pubic hair feminine in type.

She had a fine tremor of the hands and fingers and stated that at times she felt her entire body tremble. Perspiration from the axillae was marked. Her thyroid was not enlarged, no adenoma was palpable and her basal metabolism on two occasions was within normal limits.

Intermittently, for years, she had right lower quadrant abdominal pain. A gastro-

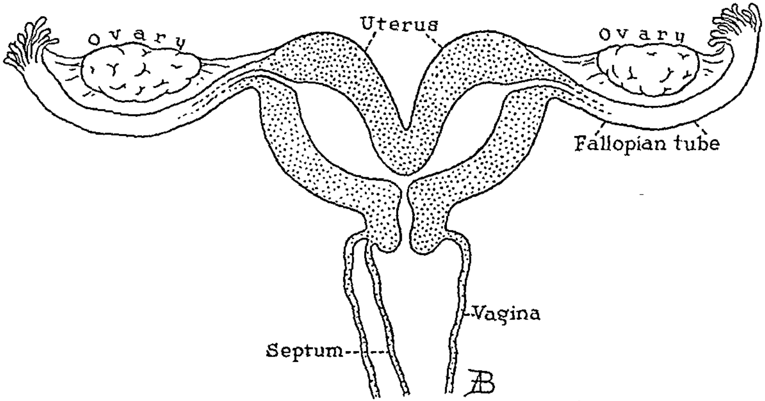


Fig. 4. *Case 1.* Illustration demonstrating uterus duplex (bicornis) unicollis with a vaginal septum dividing vagina into a right blind pouch and a left "normal" vagina. Each member had [illegible] n [illegible] tube associated normal ovary.

intestinal x-ray series was negative except for a "segmented" appendix.

The labiae majorae and minorae were normal. The clitoris was not enlarged. In place of a normal vagina a blind pouch, or "infolding," was encountered. At most it was a scant 1 in. in length and ⅜ in. in width. It was impossible to palpate a uterus on rectal examination; but what seemed to feel like normal ovaries could be outlined.

At laparotomy for a chronic appendicitis, the following was noted: "The appendix was long, and kinked on itself by adhesions at its middle."

The uterus was heart-shaped with the apex pointing distally and was "thumb-nail" in size. It measured ½ in. from top to bottom, ⅜ in. from side to side and ⅜ in. from front to back. It was in the midline. No cervix was evident. An apparently normal right tube emerged from the diminutive uterus. The left tube was represented by a strand of tissue about the thickness of plain "0" catgut that terminated distally in what appeared to be a normal fimbriated ostium. No opening could be found between the ostium and the strand of tissue to which it was attached. Both ovaries were situated at their normally expected site and appeared perfectly normal. Appendectomy was done.

FIBROMYOMA IN ONE MEMBER OF A BICORNUATE UTERUS *(Case 3)*

A doctor's mother, aged 64, had been bleeding quite persistently and heavily. On bimanual examination a mass was palpated on the right side that seemed to move with the uterus. Due to her age and the possibility of malignancy, Commander Joseph Jacobson (MC) USNR,[18] decided that a panhysterectomy was indicated.

On entering the abdominal cavity a fibroid about the size of an orange was found attached to the right member of a bicornuate uterus. The operation planned was carried out and the patient made an uneventful recovery.

There were a single cervix and a single vagina. Vaginal septae were absent.

Of special interest is the history of three normal, spontaneous deliveries.

SUMMARY

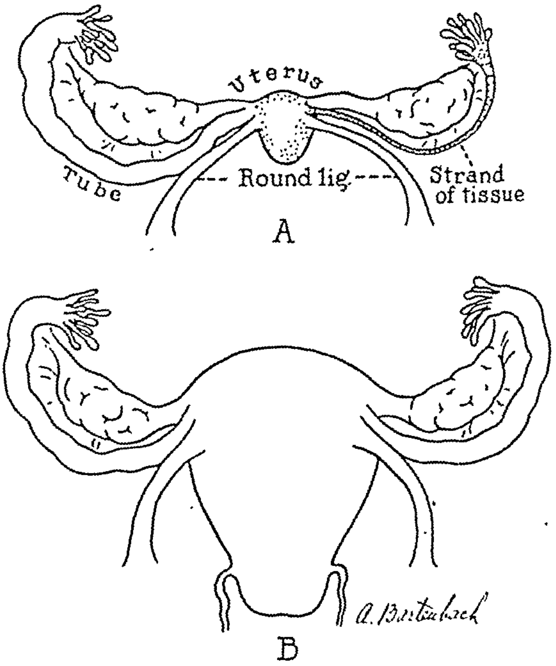


Fig. 5. *Case 2.* A. Uterus, small as a thumb nail. Right tube normal. Left tube replaced by a strand of fibrous tissue. Both ovaries appeared grossly normal and actually were twice the size of the uterus. There was no cervix. The vagina was one inch long and about three-eighths of an inch wide. B. Normal uterus shown for comparison.

(1) A proper understanding of the various abnormalities of the female genitalia is helpful in the practice of obstetrics and gynecology. Such a background will lead to fewer unnecessary surgical sterilizations of such cases while still in the childbearing period. (2) A brief discussion of the embryology of the Müllerian ducts is included in an effort to clarify the origin of the various abnormalities herein described. (3) Illustrations of some of these abnormalities as well as of several personal cases are provided. (4) The results of an extended survey of the literature are summarized.

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SUMARIO

1. Un conocimiento exacto de las varias abnormalidades de los órganos genitales femeninos es de utilidad provechosa en la práctica de la obstetricia y de la ginecología. Este conocimiento básico evitará o disminuirá el número de esterilizaciones chirúrgicas innecesarias durante el período o edad fértil.

2. Una corta discusión de la embriología del conducto de Müller es incluída con el objeto de aclarar el origen de las varias abnormálidades aquí descritas.

3. Ilustraciones de algunas de estas abnormalidades, como también citas de casos en la experiencia del autor son presentados.

4. Se da en resumen, el resultado del extenso estudio de la literatura.

RÉSUMÉ

(1) Il est utile à l'accoucheur de connaître les différentes anormalités des organes génitaux de la femme. Ces connaisances sont également utiles aux gynécologues. Ainsi armé le chirurgien fera moins de sterilisations inutiles durant la période de l'enfantement. (2) Afin de clarifier l'origine de ces anormalités, l'auteur discute l'embryologie des conduits de Müller. (3) L'article illustre plusieurs de ces anormalités et renferme le rapport de plusieurs cas personnels. (4) L'auteur nous donne les résultats d'une étude approfondie de la littérature du sujet.

Выводы

1. Правильное понимание различных аномалий женских половых органов является очень полезным в акушерской и гинекологической практике. Такая подготовка часто предовращает ненужную хирургическую стерилизацию во время плодоноснаго периода. 2. Для выяснения происхождения этих аномалий статья дает краткий эмбриологический обзор развития Мюллеровских трубок. 3. Даны иллюстрации некокторых аномалий, включая случаи автора. 4. Дан свод результата широкаго обозрения научной литературы.

Appendiceal Coprolith Simulating Ureteral Calculus

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A calculus in the appendix, opaque to x-ray examination, is of sufficiently rare occurrence to make a study of each case reported helpful in the avoidance of diagnostic errors. The history of a patient on whom I operated a number of years ago is here reported in full. The patient was brought to the hospital for an emergency appendectomy. Because of urinary symptoms an x-ray examination led to a diagnosis of ureteral calculi. The patient was a child suffering, very obviously, from an acute abdominal condition which made any delay for further diagnostic procedures unwise and even dangerous.

CASE REPORT

Personal History: Master W. B., 11 years old. Came home Saturday afternoon after double show and drank two glasses of cold milk. That evening he vomited several times. Sunday his abdomen was very sore and patient complained of nausea and a constant desire to urinate. Monday morning he woke up crying and complaining of severe pain in lower abdomen and bladder region with some pain in back. I was called to home by mother at 9:30 Monday morning.

Physical Findings: Boy appeared quite ill, temperature 102, respiration 28, pulse 120. Breathing was difficult and thoracic in character. Throat and chest appeared negative. Abdomen was greatly distended and very tender in lower right quadrant with marked rigidity of right rectus, marked tenderness at McBurney's point and surrounding area. There was also tenderness over the bladder region. Rectal examination revealed marked tenderness especially on right side. Patient was immediately hospitalized.

Diagnosis: Possible perforated appendix with generalized peritonitis.

Laboratory report: Urinalysis (Macroscopic): Specific gravity 1017, acid, albumen trace, sugar negative.

(Microscopic): White blood cells 5, red blood cells 8, hyaline and granular casts 2#.

Hematology: White blood count 26,050, P. neut. 96%, lymph 4%, Hemoglobin 96%, Red blood count 4,500,000.

As result of urinary findings and urinary symptoms, an x-ray of the chest and of the abdomen was ordered.

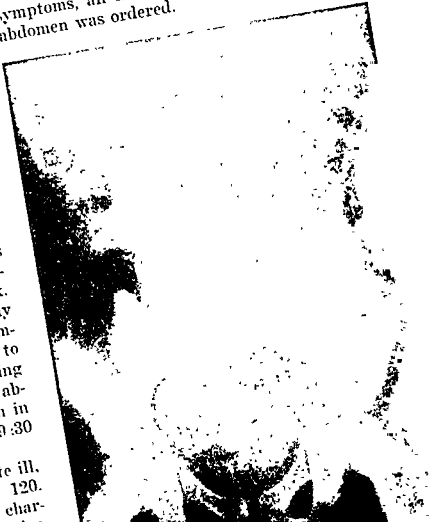

Fig. 1. X ray of abdomen showing calculus in the right ureter

X-ray report: x-ray of chest negative.

X-ray of abdomen: Elliptical shadow of calcium density in the vicinity of the lower right ureter overlying the sacrum. Kidney shadows not definitely delineated. C[illegible] ht a[illegible] able gas in the col[illegible] the small bowel. *Conclusion:* Radiographically it appears that there is a calculus in the right ureter. (Fig 1.)

Although there was a frequency of urination and the urine contained blood and pus and an x-ray film of the abdomen revealed a stone of high calcium density lying in the region of the ureter with the long axis of the stone parallel to the course of the ureter in the region of McBurney's point, further examination failed to convince me that this was the cause of the acute abdomen.

I decided an immediate operation was indicated for a ruptured appendix, well realizing that many an innocent appendix had been removed, when the underlying cause was a kidney or ureteral calculus, having in mind that if this was a calculus it could be handled by cystoscopic at a later date, and that delay was dangerous.

Abdominal Findings: The abdominal cavity contained approximately 3 ounces of thick muco-purulent exudate. The appendix was lying in right lower iliac quadrant, it was swollen and edematous and was perforated at its mid portion with a firm fecalith present.

Operation: Davis incision. Appendix was brought into the wound without difficulty, meso-appendix clamped and tied off. Appendix was removed, purse string was placed around the stump and a No. 20 soft rubber catheter was sutured into the cecum with plain No. 1 catgut through the stump of the appendix. (Appendicostomy.) Purse string was then tied around the tube. A Penrose tube was then inserted into the right iliac fossa.

The peritoneum and muscle were closed with single No. 1 chromic catgut; the fascia was closed with interrupted chromic, and the skin with plain catgut.

Laboratory report: Postoperative diagnosis: The appendix measures 1 cm. in diameter in the distal half. There is perforation at the junction of the middle and distal thirds. Peritoneum is severely inflamed and covered with purulent exudate. The lumen at the perforation contains a fecalith.

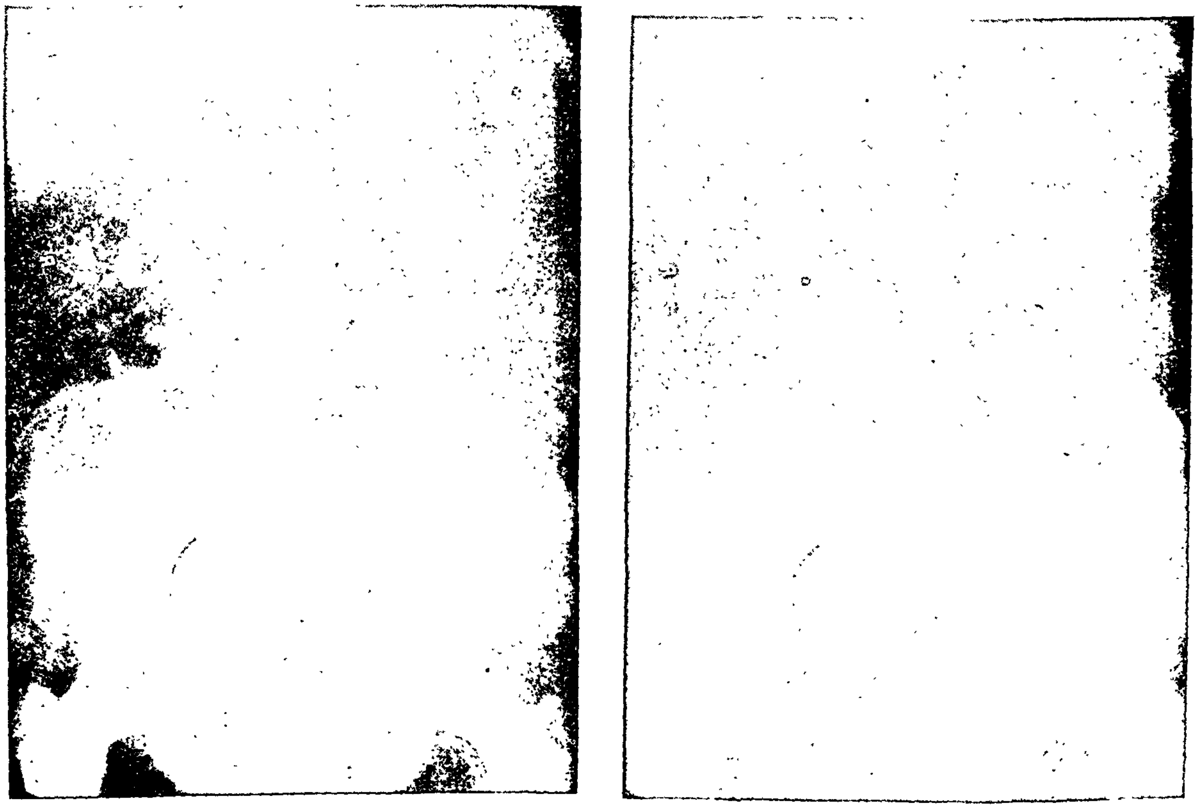

Fig. 2 (*a* and *b*). Postoperative abdominal x-ray, following appendicostomy. No shadow present. (Two views.)

Microscopic diagnosis: Acute suppurative appendicitis with perforation and purulent peritonitis.

Patient made an uneventful recovery. The Penrose drain was removed on third day and catheter on the seventh postoperative day. Discharged on October 18, 1936. Twenty-seven hospital days.

Due to the fact that a hard calculus was felt in the appendix on removal, a second x-ray of the abdomen was ordered.

X-ray report: Postoperative x-ray of abdomen showed no evidence of calculus in either kidney or ureter. Previously reported shadow was not present at this time, the fecalith having been removed with the appendix. (Fig. 3.)

X-ray report of removed appendix: Reveals calculus in lumen with an outline identical to the one seen in preoperative examination of the abdomen. (Fig. 2.)

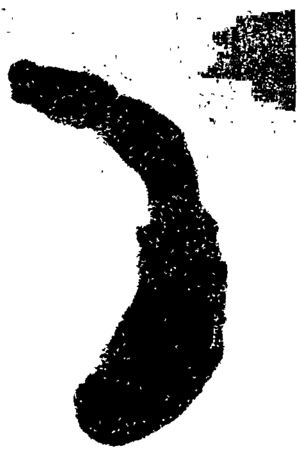

Fig. 3. X-ray of removed appendix revealing calculus in the lumen. Outlines are identical with those of the calculus as shown in the abdominal x-ray.

In the most recent review of the literature on appendiceal lithiasis to which the author had access, Tripodi and Kruger[11] reported that only two of ten cases reviewed were correctly diagnosed prior to operation, (Downes[4], Shahan[10]) both by means of a flat plate of the abdomen. Their own case in a man 33 years old was diagnosed preoperatively. In an x-ray study of the gastrointestinal tract, with the barium still in the stomach, the round, opaque shadow discovered in the right lower quadrant was thought to be a gallstone in the terminal ileum. The six-hour examination revealed the appendix clearly extending out to the calculus. Fluoroscopic examination showed the cecum, appendix, and calculus to be freely movable and the diagnosis of calculus in the appendix was verified at operation. They point out, and rightly so, that errors in diagnosis can be reduced by barium studies of the intestinal tract and by lateral views of the abdomen with opaque catheters in the ureters. However, in Mark's case there were marked urinary symptoms, such as pronounced dysuria, pus and blood in the urine, while the gastrointestinal history was negative. X-ray examination showed two stones, apparently in the ureter. X-ray with ureteral catheters indicated that the concrements were outside the ureter, but moved with the ureter, and the catheter met with obstruction as the concrements were reached. Transperitoneal exposure indicated calculi in the ureter, and a long thin appendix with the two concrements in its tip, and with tip adherent to the posterior peritoneum immediately over the ureter, afforded a complete surprise to the operator.

A case reported by Eastmond to the New York Roentgen-Ray Society and mentioned by Douglas and Le Wald,[3] is a similar case. There was a shadow above the third lumbar vertebral transverse process in a man [illegible]ing high on the right side.

parent obstruction of the ureter at this point, and a long oval shadow, with its longest axis vertical, simulated an ureteral calculus. The appendix was found *adherent to the ureter at this point* and after removal of the appendix containing the calculus, the ureter was entirely free from obstruction.

Albert[1] reported the case of a man, aged 43, with stinging pain in right upper quadrant and some tenderness to pressure over the right kidney. The urine contained microscopic quantities of pus. There was mild generalized cystitis. Introduction of a catheter into the ureter up to the pelvis caused duplication of the pain. The pneumoperitoneum revealed calculi close to the liver. At operation, the appendix was found to be retrocecal, extending upward along the decending colon to a point above the kidney and just beneath the gall bladder. Here the tip turned down and contained four calcified fecaliths.

Levi[7] reported a case in which the x-ray shadow suggested stone in the lower pole of the right kidney. Pyelography showed it to be outside the urinary system. At operation a very long appendix was found with tip containing a calcium phosphate stone attached to the lower pole of the right kidney.

There was no suspicion of the correct diagnosis, says Guido,[5] reporting a case of appendiceal calculus in which there was severe pain and tenderness over the right kidney and absence of pain in the right lower quadrant. Intravenous pyelography revealed no dye in the right kidney. The preoperative diagnosis was calculus of the lower third of the right ureter with hydronephrosis. X-ray of the appendix removed was identical with the preoperative film of the abdomen. There were no signs of inflammatory reaction in the appendix.

Jackson[6] reported one case diagnosed by x-ray examination and confirmed at operation and another visualized, but diagnosed as ureteral calculi—appendiceal location found at postmortem examination.

In Wells'[14] case the patient was perfectly *well* until twenty-four hours before admission. An appendiceal abscess was obvious and drainage was instituted. Concretions escaped from the wound. After lipiodal injection into the sinus an x-ray examination revealed a calcified mass which was thought to be calcified mesenteric glands, but operation revealed stone in the appendix. Such experiences emphasize the danger of sudden perforation and immediate acute peritonitis after a period of silent, symptom-free growth. Some of the stones found in the appendix are laminated and have been mistaken for gallstones.

In the literature reviewed by the author there was no mention of cases of true appendiceal calculi in children. Textbooks on abdominal surgery in children make no mention of such cases. Deaver, in his book on *Appendicitis,* noted that, according to Riedel, fecal concretions are more common in children than in adults. This observation relates to the nonopaque fecalith, which occurs as commonly as in 80 per cent of some reported series, while the opaque stone is rarely found in the appendix (one case in 2000), Bunch and Adcock.[2]

SUMMARY

True calculi of the appendix, opaque to x-ray examination, are very rare in contrast to the common fecalith. A case history of a boy, aged 11, is presented in full, together with brief reviews of cases reported in the literature.

The confusion of symptoms and of x-ray shadows with those of ureteral calculi, and, in reported cases, with renal calculi and calcified mesenteric glands, makes each additional case study an aid to differential diagnosis. These case histories illustrate the silent growth of these stones—a silence which may be broken by a sudden burst of symptoms calling for emergency treatment, adding to the difficulties of careful differential diagnosis before operation.

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SUMARIO

Los verdaderos cálculos en el apendix, opacos en el examen radiográfico, son muy raros en contraste con las comunes "piedras fecales" ("concreciones"). Un caso histórico es presentado en lo total en un joven de 11 años, junto con una lijera devista de los casos citados en la literatura. La confusión de síntomas y de las sómbras radiográficas con aquellas de cálculos en el ureter y en casos citados de cálculos renales y de calcificaciones en glándulas mesentéricas, añaden a los casos en el estudio que facilitan el diagnóstico diferencial.

Estas historias de casos demuestran el crecimiento silencio de estas piedras, un silencio que puede ser interrumpido por un violento ataque de síntomas urgentísimos, necesitando intervención chirúrgica y amentando las dificultades a un cuidadoso diagnóstico diferencial antes de la operación.

RÉSUMÉ

Les vrais calculs de l'appendice, opaques aux rayons-x sont rares. Les fécalithes sont beaucoup plus fréquents. L'auteur rapporte en détail un cas de calcul de l'appendice chez un garçon de onze ans. Il faut une révue brève des cas rapportés dans la littérature. Il est facile de confondre les symptômes et les ombres des rayon-x de ces cas avec ceux que presentent les calculs de l'urétère, les calculs du rein, les glandes calcifiées du mésentère. Ces cas se développent silencieusement: un silence qui peut se transformer soudainement en cas d'urgence. Le diagnostique différentiel est difficile.

Выводы

Настоящие камни червеобразнаго отростка, непроницаемые рентгеновскими лучами, встречаются редко по сравнению с каловыми камнями. Представлены: полная история болезни одинадцатилетняго мальчика и обзор научной литературы. Такое представление каждаго изученнаго случая очень содействует постановке диференциальнаго диагноза так как симптомы и рентгеновския тени мочеточных и, в описанных случаях, почечных камней, и также, тени кальцифицированных желез брыжейки часто смешиваются с симптомами и тенями камней червеобразнаго отростка. Эта статья иллюстрирует тихий рост этих камней—тишина, которая может быть нарушена внезапной вспышкой симптомов, требующей немедленнаго лечения, что само по себе делает трудной правильную постановку дооперационнаго диференциальнаго диагноза.

Physical Medicine and the Rehabilitation Problem

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REHABILITATION has been variously defined. The connotation under consideration here is the restoration to health of those who have become physically and mentally handicapped in war and in industry. These remarks will be confined to the rôle of physical medicine in this stupendous problem.

Physical medicine is often referred to as Physical Therapy and as Physiotherapy, but there are those of us who believe that "Physical Medicine" is the term of choice for this specialty as practiced by regularly qualified physicians. It embraces the medical use of all physical agents, such as water, light, electricity, massage and exercise to produce heat and cold, mechanical effects and chemical changes in tissues; also, the use of electricity in certain surgical and diagnostic procedures. Practice in this field requires the training and clinical experience of the specialist and specialized training on the part of the technician working with him.

The scientific background and technics for these procedures have been established by a long and distinguished line of capable workers, through whose original studies we have received important contributions to the healing art.

In World War I, the work of pioneers was by necessity crystallized into the foundation for modern physical medicine as the basis for rehabilitation of the disabled. It was Tait McKenzie's pocket edition, *Reclaiming the Maimed*, which was used as the manual in the Reconstruction Camps organized by him in England, Canada and later in the United States to care for the returning casualties. It was Granger's *Physical Therapeutics* which later laid the foundation for the standardization of physical therapeutic procedures, particularly in electrotherapy. It was the vision of the surgeon, William Seaman Bainbridge, which was responsible for the introduction of physical medicine into the United States Navy, through his development of a physical therapy clinic in the U. S. Naval Hospital at Brooklyn, New York.

Following the last great war, thousands of our armed forces returned with such crippling conditions as the so-called "shell-shock," amputations, peripheral nerve paralyses, various types of wounds, some badly infected, fractures of all extremities, skin diseases, burns, bursitis, back strain, phlebitis, arthritis and bone and joint injuries, with the prospect of months and years of impairment of function or total disability. The problem of rehabilitation in its broadest sense was at hand. The medical heads of the military services recognized physical medicine as a potent ally in the prodigious undertaking before them. Then began the labor of standardizing methods and apparatus, and installation of equipment in clinics for carrying out procedures in physical medicine, which were defined by the Surgeon-General of the Army as "Physical measures, such as are employed under Physiotherapy, Hydrotherapy, and Mechanotherapy, active exercise (indoor and outdoor) games, and passive exercise in the form of massage." It included manipulations and exercise in all forms, all electrical treatments, all forms of heat and cold, including hydrotherapy, all forms of radiant energy, including radium, x-ray, ultraviolet ray, the visible ray spectrum, etc. and occupational therapy.

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* Presented at the Fourth International Assembly, held in New York, June, 1943.

The late Dr. Frank B. Granger was attached to the office of the Surgeon-General of the Army, and the first complete clinic was organized at the Walter Reed General Hospital in Washington, of which the writer was privileged to become the director.

When maximum activity was reached the personnel consisted of five physicians and eighty technicians, 90 per cent of whom had been well trained in massage and corrective exercise. Ten thousand treatments per week were administered by all forms of physical therapy.

All cases came to the clinic with diagnoses and recommendations from the various department chiefs who referred them for treatment. Findings were thoroughly checked. If not in agreement, a conference was arranged between the chief of the referring department and the chief of the physical therapy department. After a common understanding was reached, the director of the physical therapy clinic prescribed the treatment, of which he was in complete control.

Equipment consisted of all apparatus approved by the best authorities in physical medicine: whirlpool baths, Sitz baths, Scotch douche, vibrators, infra-red and high wattage incandescent lamps and ultraviolet lamps for general and local application, light cabinet baths, static, galvanic apparatus for ion transfer and chemical changes in tissue, and for electrodiagnosis of injured nerve or muscle tissue, sinusoidal apparatus, of the motor generator type, for involuntary muscle exercise, high frequency machines for the production of diathermy, desiccation and coagulation.

A research clinic was established, which operated independently of the regular clinic and met following regular hours. This was entirely voluntary and was made up of physicians from the physical therapy clinic and from the pathologic laboratory. Animal experiments were conducted in the field of electrotherapy. For this, special thermometers were developed by the Bureau of Standards. Later these were replaced by the more accurate thermocouples. One result of these investigations was the proof of the production of internal temperature of varying degrees by constantly controlled high frequency currents.

The work of this clinic was at all times absorbing and challenging. There is obviously not the time for a thorough discussion of the cases treated. To cite a few:

A case of renal calculus, which had blocked the ureter and was interfering with kidney function, was sent to us after many attempts to change the direction of the calculus with no satisfactory results. Treatment by diathermy and galvanism was instituted. It took three treatments to complete the passage of the calculus into the bladder. This was accomplished after the G. U. Department had stated that two months would be considered a conservative estimate of the time required. Progress was checked with x-ray.

A boy was sent to the clinic who had had an accident to the lower leg, with fracture of the tibia and paralysis of the anterior tibial nerve with foot drop. Treatment consisted of straight galvanism with chlorine ionization, diathermy and massage. The condition wa
extremely painful to
physical therapy
who had refe
fracture dep

charge of the patient, as in his opinion no progress was being made. We were not in agreement as to the progress. In conference with the chief of the surgical department, it was decided that we should keep the boy for a further period, inasmuch as it was learned that there was no physician near his home town who could give proper treatment for this condition. As a result, in four more weeks, he was returned to his home with a comfortable and useful leg, ready to take up his usual occupation.

We received a victim of mustard gas, whose face was a mass of pulp, unrecognizable. The diagnosis was mustard burns. Ultraviolet was used, followed by chlorine ion transfer by means of the galvanic current followed by very light massage. Massage was gradually increased to maximum tolerance. The circulation was gradually restored. After six weeks maximum recovery was reached with a good result.

An interesting case was that of a young man who developed empyema following pneumonia. A discharging sinus of considerable depth was present. This had undergone treatment with various irrigations and hot water bottles. When no change in the condition was noted, he was sent to the department of physical therapy for observation and treatment. For purposes of exploration we used a very small electric bulb attached to an insulated wire which was passed through a small rubber tube to the base of the sinus. The view obtained showed a deposit of lymphoid tissue at the base. We then removed the lamp and passed a similar wire to the lesion by means of which we desiccated the diseased tissue, destroying it. Entire recovery took place after the third treatment.

By similar methods a large percentage of the maimed and diseased soldiers were returned to useful and profitable employment. This may all be summed up in a statement by Dr. M. W. Ireland, Surgeon-General of the U. S. Army at that time, when he said that "The use of the various measures of Physical Therapy has made possible the return of disabled soldiers to their occupations of civil life, who without the help of these measures would have remained permanent hopeless cripples and invalids."

With the successful results of physical medicine in the rehabilitation program of this period, it is difficult to understand why organized medicine has neglected this field in the intervening years. This has been particularly true of the civilian hospitals and medical schools in the United States, except in a few sections of the country. This neglect or indifference is accountable for the present scarcity of trained physicians, and technicians in this field. The Army, Navy and Veterans' Administration have maintained Physical Therapy Departments under able leadership. However, as the problem of rehabilitation broadens, the lack of trained men in the field will be in evidence. Few of the physicians recruited into the service from civilian life have received any previous training in physical medicine. Intensive courses are being given at the Mayo Clinic, Columbia University, and at other centers, but it is going to be difficult to cope with the need for trained physicians and technicians.

The conditions of totalitarian warfare are vastly different from those of twenty-five years ago, but we still shall have essentially the same general problems to combat in the rehabilitation of the casualties of this war; grossly wounded men with tissue loss or damage, fractures, and deformities, osteomyelitis, nerve loss or injury and the results of burns requiring extensive convalescence or reparative and reconstructive surgery. Due to the rigors of modern warfare, the dimout requirements, and other privations in the remote reaches of the earth, many of the casualties, including prisoners of war, will be cases of neuroses and psychoses. In all of these cases, physical therapy in some form is indicated.

The military forces are aware of these facts and manuals covering regulations for such procedures are in use. In the hospitals with these services are well equipped departments of physical medicine, and plans are in the making for the enlargement of these to accommodate the diseased and wounded.

A typical modern clinic of the United States Army is that of the Lovell General Hospital, in Ayer, Massachusetts, where a well qualified specialist in physical medicine, a first lieutenant in the medical corps, is in charge. The set-up is similar to modern clinics in the civilian hospitals. The main treatment room (approximately 80 ft. x 15 ft.) is adjoined by the hydrotherapy and occupational therapy suites. Types of injuries seen are largely, at present, machine gun bullets, 88 millimeter and 20 millimeter shell wounds, many burns and accidents from airplane and automobile, many fractures of all extremities, and many accidental gunshot wounds.

Treatment consists largely of some form of heat—radiant heat and whirlpool. Massage is usually limited to effleurage. Electric stimulation with the galvanic interrupted current is used, but most reliance is placed upon exercise. There is a great deal more of passive, *i.e.*, stretching, motion than is ordinarily used in civil practice. To hasten rehabilitation, much dependence is placed upon Occupational Therapy: the printing press to stimulate activity in the upper extremities; bicycle jig-saw and sanders for the lower extremities, and all forms of carpentry are used. Cabinet light baths are given for arthritic conditions. Fever therapy is often combined with chemicals for the treatment of drug-resistant gonorrhea.

Equipment is all of the very latest manufacture in all departments. The only equipment not universally found which could be of further value is short and long wave diathermy. These are installed in the older Army hospitals. Organization of Physical Therapy in the Army is much like that in civil hospitals. In most hospitals, a medical officer is in complete control of the treatment in his department. Patients are checked approximately at two-week intervals. If no progress is noted after four weeks, a recommendation is made to the referring surgeon to discontinue the treatment entirely.

In the large United States Naval Hospitals, like the one at Great Lakes, Illinois, thoroughly equipped physical therapy units are maintained, under adequate medical supervision and trained personnel. The medical officer is usually in charge of both the physical therapy and the x-ray departments. Short wave diathermy is used a great deal in the Navy to treat inflammations and traumatic conditions involving bones, joints, bursae, muscles and tendons, which are frequently injured through the nature of that service and its activities. Desiccation and coagulation of all varrucae on all parts of the body except the palms of the hands and the soles of the feet are done in the physical therapy department. War casualties thus far have consisted of late results from burns, nerve injury, fractures, shrapnel wounds and neuroses. By using physical therapy the men are improved and returned to duty more rapidly.

The Veterans' Administration under General Hines and under the medical direction of Dr. Charles W. Griffith, have maintained high standards in physical medicine and well
oughly equipp

are found in the ninety-one hospitals and three regional offices throughout the country. In each hospital appropriate facilities for physical medicine are available and are planned for in accordance with the specialty treated in the particular hospital.

In England, as part of the rehabilitation program, all Emergency Medical Service Hospitals of 300 beds or over are required to maintain physiotherapy departments. The orthopedic centers have been enlarged by temporary quarters to provide adequate facilities for the great volume of casualties on the civilian front requiring physical medicine, including remedial gymnastics and occupational therapy. There are rooms for crafts and outdoor space for football, cricket, tennis and golf. Hospital gardens also function as remedial agents. Many large hospitals are provided with physical training instructors. As soon as the convalescent is capable of doing so, he joins one of the carefully graded groups for physical exercise. An "Organizer" keeps the patient's therapeutic timetable. Medical supervision is considered essential to complete the efficiency of a rehabilitation department and to insure correct application of all methods of physical agents and the proper balance between activity and rest.

Reporting on the present activity in rehabilitation in England, Sir Robert Stanton Woods, member of the Committee on Rehabilitation of the Emergency Medical Service, makes an important observation in his plea for early treatment by physical medicine. "With the extension of modern rehabilitation facilities came the widespread realization that physical measures for restoring function—massage, electrical stimulation, remedial movement—must, to be effective, be applied early, in many cases from the beginning of treatment. The fracture case is no longer merely a broken bone to be joined together in good alignment, but a bone clothed in muscles, whose blood and nerve supply must be maintained throughout in the face of enforced immobilization, and in which healing must keep pace with the bony union. Massage, electrotherapy, assisted movement, afford very necessary and very effective means for maintaining the ebb and flow of blood and lymph in a muscle which must not or cannot be moved by the patient himself." Further, as regards the value of active movement, "As soon as the patient *can* move the injured part with safety, such purely local and passive measures of restoration may in the majority of cases be abandoned in favor of active therapy, since the muscle stimulus most potent for good is the one coming from the central nervous system. These nutrient fluids bathing the injured area must possess certain biochemical properties if optimum healing is to occur. The health and general muscle tone of the patient have to be considered, the scope of rehabilitation is widened still further to include dietetics and general exercise. We are no longer dealing with an injury, but with an injured body. Once the disabled person can be shown that he can throw a dart or kick a football, or hammer a nail, or work a loom almost as well as the next patient and better than he, himself, did yesterday, he is on the road to recovery, mental and physical. Now we are no longer dealing with an injured body, but with an injured person, body, mind and spirit."

Total war calls for total rehabilitation in all spheres, insofar as this is humanly possible of accomplishment. The concept of physical medicine, its basic procedures and scope have not been essentially altered since the earlier war, when the component parts of physical medicine were welded together for their greatest use in our first vast rehabilitation program.

During the past twenty-five years, research and development have brought further refinements in equipment and greater knowledge of the scientific principles underlying this valuable group of therapeutic procedures. To the armamentaria of earlier days we have added the so-called short wave therapy, with its many advantageous uses, electrically induced fever, of great value in certain specific conditions, electrically induced shock, which simplifies and standardizes the administration of shock therapy in psychiatric cases, refrigeration anesthesia, for amputations on the battlefield, etc., the electrocardiograph and the electroencephalograph for diagnostic purposes, to mention a few. Studies made in our accredited scientific institutions have added much to this field, both constructively and in exact scientific evaluation. Advances have been made in the treatment of poliomyelitis by our leading orthopedic men through the use of underwater therapy, and other physical measures. Sister Kenny has made a considerable contribution through original physical therapeutic technic.

The work that lies before us in the days ahead will present many medical problems difficult of solution, but *total physical medicine,* properly directed and administered, will again wage the battle of rehabilitation on the home front.

SUMMARY

Physical medicine, embracing hydrotherapy, electrotherapy, mechanotherapy, active exercise, games and passive exercise played an important rôle in rehabilitation of the disabled following the last war, and total physical medicine will again be a vital factor on the home front. The importance of adequate, trained personnel is emphasized. The work of the first complete clinic at the Walter Reed General Hospital in Washington is described, as well as that of the research clinic. Work done by the Lovell General Hospital in Ayer, Mass., is typical of current practice of physical medicine in U. S. Army hospitals.

SUMARIO

La fisioterapéutica, incluyendo la hidroterapéutica, mecanoterapéutica, ejercicios activos, juegos y ejercicios pasivos, sirven utilizables resultados en la rehabilitación de los dañados de la Guerra Europea No. 1 y la medicina total física servirá neuvamente como factor indispensable en el frente-doméstico. La importancia de un tratamiento competente y adecuado es acentuado.

Se describe el trabajo de la primera clínica completa en el Hospital General de Walter Reed en Washington, así como también la Clínica de Investigación.

Los trabajos hechos en el Hospital General de Lovell en Ayer, Mass., es típico y ejemplar.

RÉSUMÉ

La physiothérapie, l'hydrothérapie, la mécanothérapie, les jeux, la gymnastique, l'exercise actif et passif jouent un rôle d'une haute importance dans la réhabilitation des blessés de la dernière guerre. La médecine physique totale de nouveau sera un facteur vital dans le traitement des mutilés de la guerre actuelle. Il importe que nous disposions d'un personnel suffisamment instruit et d'un entraînement adéquat. L'auteur décrit les procédés employés à la clinique Walter Reed General Hospital of Washington. Il nous reseigne aussi sur les recherches poursuivies à cette clinique. Le travail qui se fait au Lovell General Hospital à Ayer, Mass., mérite une profonde considération.

Выводы

Физическая тер [illegible]
рапию, механо [illegible]
нения, игры и [illegible]

играли важную роль в реабилитаций инвалидов после прошлой войны, и теперь опять физическая медицина сделается фактором первостепенной важности на домашнем фронте. Автор подчеркивает важность компетентнаго тренированнаго персонала. Описана работа первой полной клиники при Валтер Рид Госпитал в Вашингтоне, а также работа в разных научно-исследовательых клиниках. Типичной является работа выполненная в Lovell General Hospital in Ayer, Mass.

GUILLAUME DUPUYTREN

(Continued from page 380)

weighed his defects, Dupuytren has come down as one of France's most illustrious surgeons. His contribution to surgical armamentaria included an enterotome, a double-bladed bistoury, a cataract needle, compressor and ligature carrier.

Dupuytren classified burns, described echinococcus cysts of the bone, senile gangrene, traumatic aneurysm and varicose aneurysms. He was the first French surgeon to ligate the larger arteries. He described fractures and gave his name to the contraction of the palmar fascia, known as *Dupuytren's contraction,* and to fracture of the lower end of the fibula. He devised an operation for resection of the lower jaw and an effective operation for ingrown toenails.

Dupuytren did little writing, but his lectures were published by de Boisment and Mark, his pupils, in the *Lecons Orales de Clinique Chirurgical Faites à l'Hôtel Dieu de Paris,* in four volumes, 1830 and 1834. The work was translated into several languages. His memoirs *On Injuries and Diseases of the Bones* were translated and reprinted by the Sydenham Society.

ACKNOWLEDGMENTS

(Continued from page 401)

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Editorials

Taking Stock of Ourselves

The International College of Surgeons, from its inception, chose for itself a high and exacting rôle—to shun and discourage *"surgical isolationism,"* and to create, cultivate, and amalgamate a world-wide surgical democracy. These are the purposes, paramount in the minds of the founders of the College in those years just before the world dissolved in the chaos of war.

As events move headlong toward the day when, it appears, mankind is to have another momentary chance to bring order out of that chaos, it is well to remember those purposes. There is challenge in them. We propose to accept that challenge.

The trend of today's best thought is to regard the organization of a stable peace as much more complex than it seemed to thinkers of other generations than ours. An international political system will not of itself create a durable peace, we are reminded again and again. There must also be means and machinery devised and perfected whereby men may work together across national boundary lines to solve the economic and social and cultural and scientific problems which can never again be considered soluble except on a world-wide basis.

In this infinitely complex effort to bind a world into unity and harmony, the international brotherhoods of professional men should be prepared to lead *new protagonists of good will tomorrow.* It is a hopeful thing that there are many fine and well-established societies of surgeons. Our aims are to cultivate fellowship across national boundaries and to give, through our practices and policies, substance and reality to the proposition that the science of healing knows no limits of language or race or creed. In each international surgical society worthy of its name, that thought should be uppermost in the minds of its leaders and be translated in the future into deeds and not words.

For us, the International College of Surgeons, thought about the post-war years should focus with sharp clarity upon our own endeavors. Now is the time for honest evaluation of the record. Now is the time to resolve that our College shall acquit itself with honor in its chosen rôle of democratic and inclusive fellowship.

Tenets and codes of the International College of Surgeons are characterized by simplicity. Take, for example, those two familiar sentences from our Constitution and By-Laws: Article I, Section 5:

> "It (the College) is decidedly against Arbitrary Restriction of Merit and is free of prejudice. It will recognize *the Surgeon* and his accomplishments, and will not be influenced by his financial, political, or other irrelevant status."

Should not that principle be written into the credo of every self-respecting surgeon and every great organization of surgeons?

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worthy of his calling, that the sanctity and purity of our calling can be maintained *only* by the elimination of all selfish motives?

Of course it is!

There is much merit in the principle enunciated. We are principally concerned with the extent to which we strive, in our own fellowship, to make that principle a *living reality*.

Let it be clearly understood that the International College of Surgeons, like every other worth-while surgical association, is concerned with and committed to the development of a *"surgical élite."* The quoted Article of our Constitution and By-Laws becomes significant as we think of it as a key to the concept of *"éliteness"* which is basic in our organization.

There has been altogether too much loose talk about a *"surgical élite."* What then is it in the dictionary of our International College of Surgeons? What do we mean by this *"crème de la crème"* which rises, and should rise, to the top of professional honor and distinction? Is it composed of those self-appointed men who, by virtue of inherited, purchased and hymeneal opportunities have secured position, ribbons, distinctions and diplomas?

Richard Rumbold once remarked that he never could believe that Providence had sent a few men into the world ready booted and spurred *to ride,* and multitudes saddled and bridled *to be ridden.* The founders of the International College of Surgeons shared his skepticism and wrote it into the tenets of the young organization that the right to ride high in public acclaim is a right to be won through patience and devotion.

The *"surgical élite"* to whom it will always be the joy of our College to pay homage are those men who have devoted their lives to the cause of surgical progress because they wished to serve, in spite of obstacles, hardships and vicissitudes. They are the men who have brought natural skills to perfection through laborious work, who have held to the ideals of their profession with complete selflessness, who have been willing to reach out a hand to help those struggling toward the competence and sureness which they have gained.

Such an *"élite"* can never be a closed and self-protecting clique or coterie. To it, potentially belongs that young surgical pathologist about to give up the struggle because microscopes are so expensive; the surgeon baffled in his effort to bring his gifts to full fruition because the clinics and lectures and courses are held in distant, inaccessible halls of learning; the capable surgeon ostracized and cold-shouldered in his community because his race or creed or national origin makes him conspicuous and suspect.

For great surgeons already secure in their position among the *"élite,"* the test comes at this point. Are they ready, even eager, to help men like these break the shackles that hold them back? Or does fear of the potential rival, of the young newcomer who may outdistance his peers if given a straight road to run, make them tend to withhold their hands?

The test is not unique to the leaders of the International College of Surgeons, but, because of the great principles on which the College is founded, it is a particularly crucial test. And it is important now, as never before, to ask ourselves and ask our leaders how far the faith has been kept. Has the International College of Surgeons lived up to its commitments?

The record is a promising one for all to read. A cross-section of our organization discloses the fiber of our fellowship. Here are men closely twined in university activities, and here men shut off from contact with centers of learning. Here are young men just beginning professional life, and here older men patiently teaching the wisdom and experience gained in years of study and professional practice.

Around the "green tables" of the International Board of Trustees and the Councils of the Chapters of the College many painful and inspiring dramas have played themselves out during the past few years. Painful because of the immense difficulties, material and spiritual, which have confronted members of the College in these difficult years. Inspiring because their faith in the men who sit around those "green tables" has been so abundantly justified. Problems seemingly insoluble, obstacles seemingly insurmountable, have been discussed and worked upon until solutions have been glimpsed. The extent to which those *"élite"* assemblages have come to be regarded as the embodiment of a true surgical democracy is one of the amazing facts of the history of our College. It augurs great things for our rôle in the future.

During the destructive war years, civic, military, professional and other activities have suffered much. Neither hospitals nor colleges nor surgical organizations have escaped the maelstrom of fascist madness. Yet, even in the darkest hours, the constituents—individual and collective—of the International College of Surgeons have met and counseled on ways and means of helping those in need of professional—and even spiritual—guidance. We have learned, as Somerville learned, that adversity is a sage and useful agent, a severe instructor, *but the best.*

Had it not been for the peculiar turn of world events, for example, we should perhaps have postponed or missed the closeness of association with our Latin-American colleagues which has been a bright light on a dark day. To New York, Philadelphia, Toledo, Chicago, and many other cities have come young surgeons from Latin America to present their *"surgical passports"* and to learn from their elders, to observe, and to be inspired. The College has done less for these men than it would wish to do, but it has nevertheless done considerable.

Committees and special groups of the College are hard at work today to plan the rôle of the International College of Surgeons in the post-war period. We have no salaried officers and no great monetary surpluses. *Our greatest asset is the desire to live up to the tenets, canons, and ideals of our undertaking. There we are as rich as Croesus.*

We are rich, too, in faith. Faith, that the lamp of tolerance and unselfishness which the founders of the College kindled is a light greatly needed for the healing of the nations in the dark days ahead. We believe that light, shining into dark corners, can eradicate destructive germs of evil and destroy their power to poison the life, not only of our own great profession, but of humanity itself, so that the time-worn aphorism of *homo homini lupus* will become unknown.

MAX THOREK.

Changing Trends In Suture Material

KOCHER, later Halsted, taught and strongly stressed the use of silk as an ideal suture and ligature material. Both of these superb artists in surgery made a profound impression on the surgical world. With them suture material was something to be handled with exquisite artistry and exactness. The results attained have been convincing to this day. Both of these able men have had [illegible]

Later, [illegible]

Here was a material that handled easily and rapidly; that in time, sometimes much too soon, underwent absorption. The surgeon using it was not troubled with either the early or late removal of sutures. By and large, a certain percentage of the catgut patients returned with incisional hernias. Some of these untoward results were ascribed to getting out of bed too soon, starting to work too early, etc. Later it was found that frequently the sutures underwent absorption in a phenomenally short time and before healing took place, that the tissues were, so to speak, sometimes allergic to catgut. A good many years ago Bohler, a surgeon of vast experience, observed that when catgut was used in wound closures it often brought about wound infection. Surgeons began to look about for other and better materials. Babcock began his use of stainless steel wire. Not so long ago an exhaustive, comparative study on sutures was undertaken by the research department of Temple University. The findings as related to tissue tolerance were about as follows: stainless steel wire, cotton thread, silk, nylon, plastigut, catgut. Wire is rather troublesome mechanically, especially to those unaccustomed to its use, and if placed immediately underneath the skin or mucous membrane, may in time work its way through. Silk handles easily. If used in the finer sizes and in interrupted form, it is a splendid suture material but may at times lead to sinus formation. Cotton thread handles nearly as well as silk and is excellent for use as general purpose suture material.

It has been observed that cotton thread sutures apparently cause little or no tissue reaction and may remain in the skin or mucous membrane for weeks at a time without causing any inflammatory reaction around the suture. In the closing of skin wounds a good many surgeons use skin clips and place interrupted fine cotton thread sutures in the intervals between the clips. The clips are usually removed inside of forty-eight hours. The sutures may remain for ten days or longer. This sort of arrangement seems to give satisfactory healing without irritation.

JOHN A. CANNADAY.

Prevention and Treatment of Experimental Renal Obstruction from Sulfadiazine

AN ATTEMPT to evaluate the therapeutic measures usually employed in the prevention and treatment of renal obstruction produced by sulfadiazine is reported by David Lehr* (Department of Pharmacology, New York Medical College, Flower and Fifth Avenue Hospitals).

The investigation was made under the standard conditions of the animal experiment, using closely bred albino rats. "Forcing of fluid" was accomplished by daily stomach-tube feedings of fixed amounts of water. Alkalization was produced by adding sodium bicarbonate to the water. For purposes of comparison, two sub-groups received solutions containing an acidifying instead of an alkalizing salt (sodium chloride and ammonium chloride). After standard conditions had been established, sodium sulfadiazine was injected repeatedly in amounts which were known to produce massive precipitation in the renal tubules, provided no therapy was employed. Throughout the experiment (three to nine weeks), volume, specific gravity, pH and drug concentration in the urine were recorded daily and frequent determination of the sulfadiazine level and nonprotein nitrogen content of the blood were also carried out. Postmortem examinations were performed on all the animals which succumbed during the experiment and also on all survivors, which were killed by exsanguination.

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*Bulletin of the New York Academy of Medicine, July 1944, page 424.

It was found that chronic sulfadiazine intoxication produces in rats the most significant pathologic-anatomic changes in the kidneys, in the aorta and other parts of the arterial tree and in the thyroid.

The striking success of alkalization in combination with the "forcing of fluid" was clearly borne out by the high rate of survival (no deaths occurred) and the almost complete absence of significant lesions in the alkali-treated animals. Neither the forcing of water alone nor the administration of acidifying salt solutions provided adequate protection. Without exception, animals of the groups which succumbed to the sulfadiazine intoxication revealed massive intratubular precipitation of sulfadiazine accompanied by severe tubular dilatation and degeneration of the kidneys. Apparently related to the renal damage was the aortic damage, which consisted of a necrosis of the media starting in the muscle fibers, followed by swelling and destruction of the elastic membranes and imbibition of the necrotic tissue with calcium salts. In advanced cases, the aorta assumed a bamboo-stick-like appearance due to the segmental arrangement of bulging calcified rings. True bony metaplasia developed in some cases of longer standing. The thyroid sho… marked macroscopic increase in size a… histologically presented a picture of seemingly high glandular activity as previously reported by MacKenzie and others.

The investigation proved that in the animal experiment intrarenal concrement formation from sulfadiazine and its serious consequences can be prevented by alkalization in conjunction with the "forcing of fluids."

In the treatment of renal obstruction, renal block was produced by intraperitoneal injection of a single fatal dose of sodium sulfadiazine. If left untreated, the animal invariably developed pronounced and long-lasting renal obstruction from the intratubular precipitate of sulfadiazine, and 80 per cent succumbed after two or three days. Treatment consisted in stomach feedings of fixed amounts of water or salt solutions (containing either $NaHCO_3$, NH_4Cl, a mixture of these two, or NaCl. The fluids were given twice daily beginning with the day of renal obstruction and continuing for at least one day or more.

The therapeutic success achieved with solutions of NaCl and of the mixture of $NaHCO_3$ and NH_4Cl was striking. These solutions made possible the complete recovery of all rats from an otherwise fatal sulfadiazine intoxication, whereas no benefits were derived from "forcing of fluid" alone. Serum pH values obtained from heart blood indicated the presence of a severe uncompensated acidosis in the ammonium chloride group, and the development of an uncompensated alkalosis in the bicarbonate-treated animals.

From these findings, the remarkable therapeutic effect of a mixture of ammonium chloride and sodium bicarbonate in exactly the same concentrations will prevent dangerous changes in the acid-base balance of the body, which are so readily elicited in the presence of renal obstruction, and will thus enable the increased crystalloid concentration to initiate a powerful and life-saving diuresis (salt diuresis). This latter contention would also explain the therapeutic effect of large doses of saline solution, despite the drawback of being a slightly acidifying agent.

A. L. Wolbarst.

The Russian Army Medical Personnel on the Battlefield

FIERCE battles against the hordes of fascism are being waged on the frontiers of the Soviet Union. Guns are thundering, tank and airplane motors are roaring, and machine guns are rattling on a front stretching from the Barents Sea to the shores of the Danube and the Black Sea.

Each day brings new reports of deeds of frontline heroism and valor on the part of Soviet airmen, artillerymen, tankmen, the infantry, the signal corps and seamen. And each day also brings news of the fine work that is being done by the medical personnel in rendering first aid, in evacuating the wounded, of the efficient service rendered by the network of hospitals which was swiftly set up.

Nowhere is the doctor valued so highly as at the front. In the complex organism of modern armies the ambulance service occupies an important place. Great army men have always paid heed, and rightly so, to the voice of the doctor. Take, for example, the Russian Field Marshal Suvorov, one of the greatest soldiers in history (who, incidentally, was in Berlin in 1760 with the Russian army which smashed the troops of Frederick 11). Suvorov attached great importance to medical service for his men; his orders regarding doctors and hospitals show his concern for the health of the Russian soldier.

It is the duty of the medical personnel of the Red Army to see to it that every man and commander is strong, healthy and buoyant, to guarantee rapid recovery of the wounded and to make sure that wounds leave no after-effects or complications.

Soviet army doctors have more than once displayed genuine heroism, skill and ability to work under adverse conditions. At Lake Hassan and at Khalkhin-Gol in the Far East, and in the snows of Finland they calmly fulfilled their duty without thought of self. Doctors, nurses and ambulance personnel shared with the troops the hardships of marches and attacks, frequently rendering aid to the wounded under a hail of bullets and shrapnel. More than a thousand of the medical personnel were decorated with orders or medals for their work during the war against the Finnish Whites.

I have myself witnessed the valorous deeds performed by Red Army men in the Finnish war. I saw the might of our army technic in action, and I saw the notoriously "impregnable" fortifications of the Mannerheim Line collapse before our crushing impact. And the ambulance service of the Red Army is on as high a level as its military technic. In the Finnish war, 83 per cent of the wounded were restored to service. This is an unprecedented figure. In the great patriotic war the peoples of the Soviet Union are now waging this percentage will be higher yet. Death from wounds will be the exception. These are our aims and we shall achieve them.

With the collaboration of prominent scientists the regulations covering the Red Army ambulance service, its tactics and organization, have been revised during the past year. The present regulations take all the features of modern warfare into account: mobility, heavy fire, mechanization, etc. Frontline doctors now render skilled aid under the most diverse conditions. Moreover, the aid is strictly specialized. For example, scalp wounds are treated by neurosurgeons, jaw wounds by stomatologists,

Ever conscious of the war danger, Soviet scientists have been doing much fruitful work of late on field surgery in their laboratories and institutes. Here are a few instances:

The Leningrad professors P. Kupriyanov and N. Yelansky have systematized the records of surgical aid to the wounded during the Finnish campaign and have made a number of interesting deductions relating to blood transfusion, the prevention of anaerobic infections, the treatment of wounded at various stages of evacuation, etc.

Professor V. Shamov, who has studied a wealth of data on scalp and brain wounds, has recommended new methods of transporting the wounded men and has outlined methods of treatment.

Professor S. Girgolava has worked out a method of preventing and combating frostbite.

Professor V. Gorinevskaya, Moscow, and Profesor J. Janelidze, Leningrad, have made a thorough study of lung and pleural wounds.

The Institute of Neurosurgery, which I head, has worked out methods of fighting shock—that terrible scourge of war

What is more important, however, i the fact that thousands of medical ers have benefited by the research conducted by leading scientists. One of the means of circulating this knowledge and experience was the Field Surgery Week held at the end of last year in many large cities of the country. Moreover, thousands of doctors and nurses have gone through special military training. Soviet medical workers have gone to the front fully prepared for their difficult and self-sacrificing work. Most of them, by the way, went as volunteers, and there is no end to the medical workers, both young and old, who are volunteering. Those who remain in the hospitals and clinics in the rear are studying hard, preparing themselves to be able at any moment to replace their colleagues in the front lines.

As the wars in Mongolia and Finland have shown, a great many wounded men were saved by blood transfusion timely carried out right on the spot at first-aid points and field hospitals. This has been made possible, thanks to patriots who donate their blood to save the men defending the country. As soon as the news of the enemy's perfidious attack became known, the blood transfusion institutes throughout the land were literally besieged by citizens offering to donate their blood. Women workers came *en masse* from the factories after work. Students, housewives, typists, actresses, mechanics, teachers—in short, men and women of all ages and professions—are offering their blood, which will be preserved and sent to the front.

In these days of supreme patriotic fervor, I am immensely happy to know that my place is with the Red warriors who are destined to annihilate the fascist abomination.

I have written to my son, who is serv-

"This is a serious time in the life of our country," I wrote him. "You and I are among the ranks of our country's defenders; you in the Red Navy and I in the Red Army, as its chief surgeon.

"We know our duty, the duty of patriots, loyal sons of the country. With indomitable courage be an example to your younger comrades. Inspire them with heroic enthusiasm and ardent love for our great land. We will show the world once again what our Army and Navy can do in this hour of trial and we will give a worthy rebuff to the invaders."

The proud, freedom-loving Soviet people will never be brought to its knees.

Great is our strength and withering our hatred for the enemy!

Nicolai N. Burdenko, F.I.C.S. (Hon.).

CHAPTER NEWS

MEXICO

PROF. DR. MARIANO VÁZQUEZ, F.I.C.S., Regent of the Mexican Chapter in Neurosurgery, was elected Vice-President of the Mexican Academy of Surgery for 1944-46. Prof. Dr. José Rábago, F.I.C.S., Regent of Gynecology and Obstetrics of the Mexican Chapter, was elected Head of the Board of Directors of the Mexican Academy of Surgery for 1944-46.

Prof. Dr. Abelardo Monges López, F.I.C.S., Regent of Gastroenterology of the Mexican Chapter, was named Surgeon-in-Chief of the National Mexican Railways.

Prof. Dr. Gustavo Argil, F.I.C.S., (H.C.) Director of the Faculty of Medicine of the National University of Mexico, in a recent session of the Executive Council, was unanimously elected to serve for two years more in his important office of Director. This reelection sprang without doubt from the brilliant career of Dr. Argil. The International College of Surgeons congratulates its distinguished Mexican colleague on this honor.

PERU

DR. FRANCISCO GRAÑA, vice-president of the International College of Surgeons, has recently been elected president of the National Academy of Medicine of Peru.

HAITI

THE HAITIAN CHAPTER of the International College of Surgeons is making itself felt as is manifested by the report of its recent meeting recorded in the *Bulletin du Service d'Hygiène et d'Assistance Publique.* Prof. Bourand expressed his gratitude to the President of Haiti through his personal representative at the function for having made possible the presence of the Haitian delegation at the Fourth International Assembly of the International College of Surgeons held in New York in June, 1943. The members returned from the Assembly inspired, enthusiastic and invested with the necessary authority for the creation of the Haitian Chapter of the International College of Surgeons. Dr. Bourand analyzed the purpose and profundity of the College: "La Science n'a pas de patrie." He stressed some of the ideals of the College and pointed out its international character, emphasizing that whoever bears its name will be well received wherever he goes. Dr. Bourand concluded his address by saying that since May, 1942, he and Dr. Elie Villard had learned of their admittance to the Fellowship of the College, and again extolled the President's kindness in making it possible to sojourn to the International Assembly to receive the diplomas and insignias, which according to the International Constitution, must be received in person.

A scientific program consisting of the following papers concluded the meeting: "Ovarian Conservation in a Case of Hysterectomy in Young Women," by Dr. Martial Bourand; "Pyelo-Renal Infections and Nephrostomy in Haiti," by Dr. C. Valmé; "Technic of Intracapsular Extraction of Senile Cataract," by Elie Villard.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS

THE following amendments to the Constitution of the United States Chapter have been made and approved by the International Board of Trustees:

MEMBERSHIP

1. The membership of the National Chapter shall consist of eight different classes of members. Minimum age and percentage of surgery shall be required *as follows:*

	Minimum Age	Percentage of Surgery
1. Matriculate	28	40%
2. Associate	32	60%
3. *Member*	36	80%
4. Associate Fellow in Pathology, Anesthesiology, or Roentgenology	32	
5. Fellow	40	100%
6. Master		
7. Emeritus		
8. Patron		

It is further provided that Associates and Members are given a five year limit in which to submit for *reconsideration their progress for advancement in* rank to either Member or full Fellowship. Failure to meet this educational requirement may forfeit continued membership in the College.

ENTRANCE FEES

2. The present schedule of Entrance Fees is as follows:

FELLOW	$100.00
ASSOCIATE FELLOW	$100.00
MEMBER	$100.00
ASSOCIATE	$ 75.00
MATRICULATE	$ 50.00

ALL FEES ARE TO ACCOMPANY THE APPLICATION.

Matriculates are to forward $25.00 with the application, and the remaining $25.00 upon being advised of having qualified.

Should any application not meet required qualifications, the fee will be promptly refunded.

ADDITIONAL FEE FOR PROMOTION

Matriculate to Associate	$25.00
Associate to Member	$25.00
Member to Fellow	NONE

ANNUAL DUES

Matriculate and Associate	$15.00
Member and Fellow	$25.00

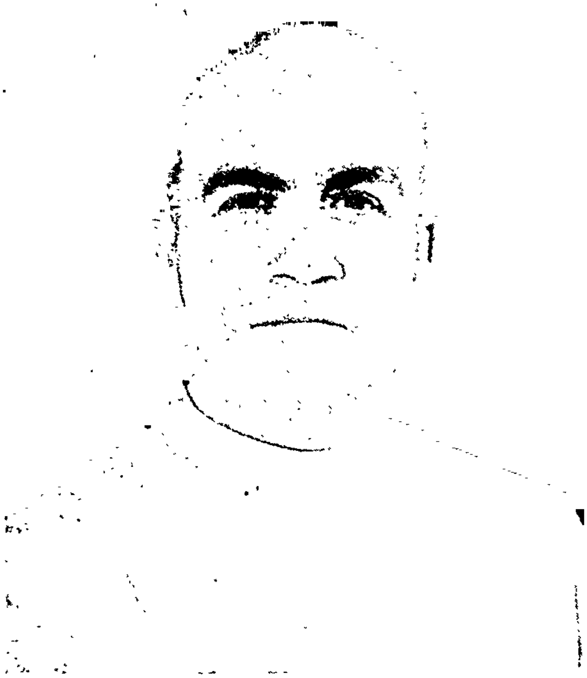
MEMBERSHIP.—For information about membership in the International College of Surgeons and other matters pertaining threto, address *Mr. Ralph E. Osborne, Business Secretary, The Drake, 1512 Spruce Street, Philadelphia, Pa.*

NOTICE. In order to insure prompt delivery of the JOURNAL, those who template changing or have changed their address, or those entering or leaving tary service, please notify promptly Mr. Ralph Osborne, B [illegible] ger, Spruce St., Philadelphia 2, Pa., of their [illegible]

PEN PICTURES OF SOME SURGEONS RECENTLY ADMITTED TO FELLOWSHIP

CONRADO ZUCKERMANN

DR. CONRADO ZUCKERMANN DUARTE was graduated from the National University Faculty of Medicine, having been awarded a gold medal for his scholastic attainments. His thesis on the "Metabolism of Carbohydrates" did much to publicize in Mexico the discovery of insulin by Banting and Best.



Conrado Zuckermann.

Immediately following his graduation Dr. Zuckermann was appointed clinical assistant of the Faculty and Consulting Surgeon of the General Hospital. Named clinician in cancer at the Institute of Hygiene, two years later he published a book on cancer which achieved wide recognition.

A professorship in surgical pathology at the Faculty of Medicine followed. His "Surgical Pathology," the result of seven years of work, was the crowning achievement of this period of his career. However, his specialty is surgery, and the "Surgical Studies," published in 1938, introduced in Mexico the results of his neurosurgical studies. His work on "Present State of Surgery in Cerebral Tumors," was favorably commented on at the Second International Assembly of the International College of Surgeons.

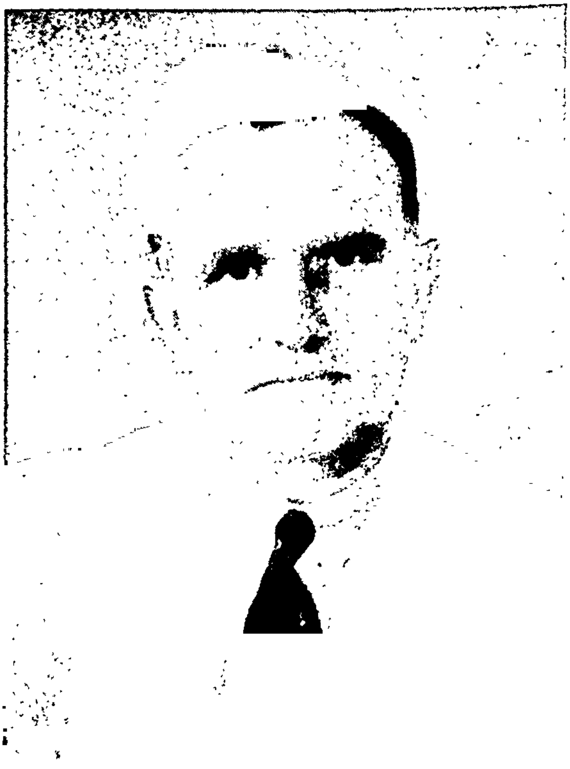
The outcome of Zuckermann's many scientific excursions in the United States and other foreign countries is an entertaining volume "Travels of a Surgeon."

In 1940 Zuckermann became chief of the Anti-Cancer League. He founded and is director of the excellent new publication "Revista Mexicana de Cirugía, Ginecología y Cancer."

Zuckermann published "Surgery of Constipation" in 1939; in 1940 appeared "Studies in Cancer"; at present his "White Uniform" is on the press. Besides he is the author of numerous contributions in the fields of surgery to surgical literature, malignancies and surgical gynecology.

JAMES F. BRAILSFORD

JAMES F. BRAILSFORD, outstanding British radiologist, received his education at Birmingham University, from which



James F. Brailsford.

he obtained his M.D. in 1928 and his Ph.D. in 1936. A member of both the Royal College of Physicians and the Royal College of Surgeons, Brailsford was awarded the Robert Jones Gold Medal and Prize of the British Orthopedic Association in 1927 and the Roentgen Prize of the British Institute of Radiology in 1935. He has twice held the chair of Hunterian Professor at the Royal College of Surgeons (1934-35, 1943-44).

Dr. Brailsford holds the following appointments: Radiological Demonstrator in Living Anatomy, University of Birmingham; Honorary Radiologist at the Royal Cripples (Orthopedic) Hospital, the Queen Elizabeth Hospital and the Warwickshire Orthopedic Hospital; Consulting Radiologist to all municipal hospitals of Birmingham; the Robert Jones and Agnes Hunt Orthopedic Hospital; the Birmingham Mental Hospitals; the Birmingham Accident Hospital and Rehabilitation Center.

Affiliations with medical societies include: the British Orthopedic Association; the Royal Society of Medicine; the British Medical Association; the British Institute of Radiology; and the Birmingham and Midland Medical Society. In addition to contributions to various periodicals, Dr. Brailsford is the author of "The Radiology of Bones and Joints," Third Edition.

BASIL HUGHES

BASIL HUGHES was born at Cheshire, England, the second son of the Vicar of Cheswardine. He was educated at Park House School, Reading, Eastman's Royal Naval Academy and Selwyn College, Cambridge. His medical education was obtained at King's College Hospital, London, where he was Senior House-Surgeon and House-Physician in 1909 and 1910. He completed his medical training in London, Vienna and Berlin.

Dr. Hughes was Casualty Officer at the Royal Free Hospital, London, and House-Surgeon of the Paddington Children's Hospital in 1911. From 1911-13 he was Resident Surgical Officer of the Royal Infirmary, Bradford. During World War I he saw service in all posts of the medical branch and was awarded the D.S.O. and decorated with the Order of St Sava of Serbia.

At present this distinguished British surgeon is Honorary Surgeon, Bradford Roya Infirmary; Honorary Consulting Surgeon Bradford Children's Hospital; Senior Surgeon, Bradford Municipal General Hospital. A Fellow-Founder of the Association of Surgeons of Great Britain and Ireland and of the Surgical Union Club of Great Britain and Ireland, Dr. Hughes is also a member of the Bradford and Leeds Medico-Chirurgical Societies.

Basil Hughes.

Contributing to medical journals, shooting, farming and country pursuits take up Dr. Hughes's leisure time. He is the author of "War Surgery, from Firing Line to Base."

ROBERT J. McNEILL LOVE

ROBERT LOVE was born in Plymouth, Devon on May 2, 1891. He was educated at Taunton School and the London Hospital. In 1914 he was [illegible] as a doctor and the following year [illegible] sioned in the Royal Army Med serving at Gallipoli, in India and Mesopotamia.

On his return, Love was connected with the London Hospital. He became Surgeon to the Royal Northern, Metropolitan, St. Peter's, Whitechapel and Milday Mission Hospitals and Consulting Surgeon to the Epsom and Ewell and City of London Maternity Hospitals. In 1929 he was made Hunterian Professor of the Royal College of Surgeons.

Affiliations include: Fellow Royal Society of Medicine and Medico-Legal Society; Examiner in Surgery, General Nursing Council.

His publications cover the field of general surgery: *A Shorter Surgery; A Short Practice of Surgery* and *A Short Practice of Surgery for Nurses* (both in collaboration). His contributions to periodicals have been numerous. Some of the treatises on surgery bearing his name as well as that of Hamilton Bailey have been received with acclaim in their homeland as well as in the United States of America and elsewhere.

Robert J. McNeill Love.

IN MEMORIAM

LLOYD THOMAS SUSSEX, M.D., F.A.C.S., F.I.C.S.

Dr. Lloyd Thomas Sussex, Fellow of the International College of Surgeons, died of coronary thrombosis on June 8 at Farragut, Idaho. Dr. Sussex was born in Hope, North Dakota. He obtained his B.S. from the University of North Dakota and his M.D. from Northwestern University Medical School (1926). His internship was spent at Wesley Memorial Hospital, Chicago. From 1927-30 he did postgraduate work at the Mayo Clinic, Rochester, Minnesota. Dr. Sussex was on the staff of Kennedy Deaconess and Sacred Heart Hospitals from 1930-1942. He was attached to the latter hospital as lecturer in surgical diseases in the Nurses' Training School. In 1942 he entered the Naval Medical Corps. In September of that year he was assigned to active duty in the Pacific, where he served eighteen months. Dr. Sussex was a member of the American Medical Association, the Montana State Medical Association, the Hill county Medical Society, the Alumni Association of the Mayo Foundation, as well as a Fellow of the American College of Surgeons and the International College of Surgeons. We extend our deepest sympathy to the family of our beloved colleague and esteemed friend.

BOOK REVIEWS

The Treatment of Peptic Ulcer. George J. Heuer, C. Holman and W. A. Cooper. 118 pp. $3. J. B. Lippincott Co., Philadelphia, 1944.

The unique value of the book by Heuer and his associates lies in the meticulous records kept by the authors in which they have noted conditions in 98.2 per cent of 1139 medical and surgical ulcer cases, followed up over a period of ten years by repeated return of the patients to the clinic. This in itself is a tremendous task. The data from the examinations were grouped as follows: results of medical management; results following the different ordinary operative procedures such as: gastroenterostomy, excision of ulcer and gastroenterostomy, gastric resection; frequency of postoperative marginal ulcers; frequency of malignant transformations *in ulcus*; management of massive bleeding ulcers; influence on gastric acidity by gastroenterostomy and gastric resection The exceptionally fine presentation of the material well compensates for the disadvantage that the total number of surgical cases were relatively few as compared with other operative statistics. To elucidate: This reviewer notes from the statistical tables embodied in the work that the total number of gastroenterostomies performed was 201, resections 142 and radical operation of marginal ulcer only 9.

The principal results may be summarized as follows: 732 patients were treated medically (hospital stay one to six months; Sippy diet). Results: 55 per cent labeled as satisfactory; 35 per cent unsatisfactory; 10 per cent could not be evaluated because of the short followup period. The 35 per cent of failures listed represent those requiring operative procedures, though only 10 per cent were since subjected to operation. The remaining 25 per cent were tabulated as unsatisfactory and not yet subjected to operation. This permits the conclusion that in these latter instances operation seems indicated.

The author's conclusion concerning the medical treatment is as follows: "If study of this series has revealed anything, it is that we should urge surgery more strongly than we have, particularly in those patients in whom hemorrhage is a prominent feature of this disease and in those with a rapid progressive course in whom pain and tenderness in the epigastrium suggests the possibility of perforation."

In evaluating the results of operative interventions, it is noteworthy that Heuer is inclined to favor gastroenterostomy. In a short or long-term basis of followup of gastroenterostomy the good results were only 10 per cent lower than in those with gastric resection (73 per cent: 83 per cent satisfactory results), representing no appreciable difference from that observed in the operation for duodenal or gastric ulcer. Heuer had observed only 11.9 per cent of marginal ulcers following gastroenterostomy and 1.4 per cent following resection.

In connection with the discussion of marginal ulcers following gastric resection, the author cites the work of Mage, in which over 8 per cent recurrent ulcerations, in 502 patients, were subjected to resection. The reviewer wishes to point out that the diagnosis in a considerable number of cases cited by Mage may not be entirely free from criticism.

The total mortality (immediate and late) is comaratively high (77 per cent), but the total mortality all patients subjected primarily to gastroenteros-my is also high (6.4 per cent).

It would be regrettable to draw definite conclusions if the relatively good results of gastroenterostomy presented in Dr. Heuer's book vary from Heuer's own conclusions. Heuer leaves little doubt that when general and local conditions permit or hemorrhages occur or there is evidence of malignant degeneration, resection is indicated. It seems to this reviewer that technical difficulties due to local pathologic conditions should also receive emphasis, for it is here that exclusion resection procedures find their greatest value. In cases in which resection of a duodenal ulcer is beset with increased dangers to the patient's life, one must, in the opinion of this reviewer, give preference to gastroenterostomy.

One is clearly impressed with Heuer's scholastic work, which is based on experience. His recommendation of subtotal resection is timely indeed. The author believes that removal of half of the stomach seems to suffice and that it is of utmost importance to embrace in the resected segment the antrum and pylorus of the stomach. His more conservative stand with regard to the extent of gastric resection is influenced by his studies of pre- and postoperative gastric acidities. Subtotal gastric resection of whatever magnitude does not insure an achlorhydria or anacidity; an anacidity may fail to insure a satisfactory result. The satisfactory results following resection may continue for years in the presence of a normal or high acid secretion. Indeed, the studies of Heuer show that, regardless of the extent of resection, as long as the removal includes the antrum, pylorus and ulcer-bearing duodenum and regardless of the postoperative acidity findings, the satisfactory results approach within 5 per cent those who, after resection, have a postoperative anacidity.

Space forbids further evaluation of this fine work. The investigations of Heuer and his associates give sound fundamental directions to ulcer treatment, both medical and surgical. The work is of indubitable value to both internist and surgeon; its use is further augmented by the fact that as a result of the war there will be noted an increased incidence of ulcer-frequency in all lands.

Surgery of Modern Warfare. Edited by Hamilton Bailey. Part VI, pp. 897-1108, 146 illus. E. S. Livingstone, Edinburgh, 1944. *(For review of Parts I and II, see the Mar.-Apr., 1944 issue; for review of Parts III and IV, see the May-June issue; for review of Part V, see the July-Aug. issue.)*

Part VI, the last volume to appear of this excellent series on War Surgery continues the section on Wounds of the Trunk, and treats of surgical diseases encountered in subtropical countries, concluding with a section on Administration. Several interesting case histories make the chapter on Wounds of the Large Intestine particularly graphic. Special attention is given to chemotherapy applied to wounds of the rectum and buttocks. The excellent illustrations add much to the chapters on abdominal, renal, bladder, urethra and testicular wounds. One of the unique subjects presented is subtropical surgery. Much has been written on tropical diseases, but subtropical surgery is practically a virgin field. Under Administration such topics as The Stretcher Case, Wounds
Naval Action, Transportation of
Organization in the Emergency
Ho

Organization of a First-Aid Post are discussed. A valuable appendix contains additional up-to-date information on chemotherapy, shock-hemorrhage syndrome and its management, blood transfusion, frostbite and burns, anesthesia, vascular surgery, amputations, technic of bronchoscopy, abdominal wounds, the changing character of wounds, etc. An adequate index makes this set of volumes on War Surgery not only handy and compact but easy to use. This reviewer unreservedly recommends the set to students and practitioners in all branches of medicine and particularly to surgeons.

Principles and Practices of Inhalational Therapy. Alvan L. Barach, M. D., Associate Professor of Clinical Medicine, Columbia College of Physicians and Surgeons. 315 pp., 50 illus. $4. J. B. Lippincott Co., Philadelphia, 1944.

Inhalational therapy is important for all physicians and surgeons who have patients to care for. The diseases amenable to treatment by means of gases, positive pressure and vaporized solutions of certain drugs are many and varied, and a review of this important subject, which includes the technics as well as the physiologic basis, should be of interest to every member of the medical profession.

The new book by Dr. Barach presents a preliminary chapter on the historical and physiologic background of inhalation therapy which is followed by thirty-one chapters on diseases for which methods of inhalation therapy are indicated. The last five chapters deal with equipment and technic.

The chapters on diseases follow a uniform pattern consisting of four sections: definition, pathologic physiology, inhalation therapy and bibliography. No attempt is made to include in the description of diseases the etiology, symptomatology or treatment other than inhalation therapy. Many of these chapters are only one or two pages in length, but those on altitude sickness, pneumonia, congestive heart failure, bronchial asthma, pulmonary emphysema and chronic pulmonary tuberculosis are quite lengthy and comprehensive.

The last part of the book deals with various masks, tents, respirators and other forms of apparatus and equipment with illustrations and photographs supplied by the manufacturers.

The book undoubtedly will prove to be valuable to all physicians and surgeons who wish to understand the physiologic basis as well as the technics of inhalation therapy.

China's Health Problems. Szeming Sze, General Secretary, Chinese Medical Association and Editor. Chinese Medical Journal. Ed. 2. 60 pp. $1. China Institute in America, Washington, D. C., 1943.

The strong demand for a second edition of this interesting monograph, first prefaced by the author in May, 1942, was responsible for the appearance of this volume in April, 1943. The merit and success of the work lies in the comprehensiveness of its information on health problems and medical organization in China. The deep interest and sympathy which exists today in America toward problems of aid and relief for China, especially medical relief, are manifest and widespread.

The author, from the very outset, draws attention to a possible source of confusion arising from the support of mission hospitals and training of medical personnel, hence in this book he has attempted to put the main problems in their perspective and to reach out for the "long-term problems" and the "semipermanent ones," transcending the immediate vicissitudes of the present war.

Mr. Sze is in possession of factual knowledge and dependable information in every detail, and he has grouped and classified the various subjects in sequence of basic importance and historic evolution:

1. Scope of China's Health Problems.
2. State Medicine.
3. Nongovernmental Hospitals and Private Practitioners.
4. Health Education.
5. Medical Education.
6. Medical Societies.
7. Army Medical Service.
8. Civilian Medical Relief.
9. Assistance from Abroad.
10. Medical Supplies.

Thus, we see in this complete presentation not only the main and urgent problems, but a categorical consideration of the inherent inter-relation to be reckoned with in the solution of what the author calls "long-term problems," while giving due attention to the introduction of modern demands in the exigencies of the present war and looking ahead in preparation for post-war necessities, rehabilitation, preventive medicine and standardization.

In this little volume Sze has met the issues from every angle of the problem known and soundly prepares for the possibilities and probabilities in the unfolding of things to come and things to do.

The author has cleverly adapted his monograph to library purposes as well as dissemination of timely information.

Surgery of Pancreatic Tumors. Alexander Brunschwig, Professor of Surgery, University of Chicago. 425 pp., 123 illus., 1 col. pl. C. V. Mosby Co., St. Louis, 1944.

The monograph by Brunschwig on the *Surgery of Pancreatic Tumors* is most comprehensive. The historical data are informative and enlightening. The evolution of the various operations performed at the present time confirms the thought and deductions of those who were pioneers in this type of surgery. There seems to have been nothing omitted in considering the symptoms, diagnosis and treatment of the several conditions causing jaundice. Exception may be taken to the statement that pain is nearly always present in carcinoma of the head of the pancreas, since the great majority have no pain at all. It must be admitted that every distended gall bladder is not caused by malignancy of the papilla of Vater or the pancreas.

The illustrations are excellent, the type easily read. The bibliography covers a wide field pertaining to this particular subject. It behooves every surgeon to read this book, a classic in its particular field.

War Endocrinology. James H. Hutton. 363 pp. The Wayside Press, Chicago, 1943.

War Endocrinology supplies an excellent guide to the common endocrine problems encountered by the physician in private practice who lacks time or facilities to familiarize himself with the voluminous literature on endocrinology and who sees endocrinopathies as only one of his daily problems.

The facts of clinical importance are presented to him by the author in such a way that he can grasp these facts in the brief time his daily works allows for reading. The author's rich experiences in the field of endocrinology are based on facts gleaned from physiologic and histologic studies and experimental data. Tests and diagnostic procedures are thoroughly explained. Commercial endocrine preparations are evaluated in treating various endocrinopathies. The material is comprehensive, embracing the pituitary, thyroid, adrenals, gastro-intestinal tract, female and male endocrinology, essential hypertension and diabetes, the parathyroids, thymus and pineal glands, obesity and methods of study, and finally endocrine preparations.

The format is convenient and the book well printed.

Cataract and Anomalies of the Lens. John G. Bellows, Assistant Professor of Ophthalmology, Northwestern University Medical School. 624 pp., 208 illus., 4 col. pl., and numerous tables. $12. C. V. Mosby Co., St. Louis, 1944.

This exhaustive compilation and presentation of cataract from the clinical standpoint is the result of a lifetime of research and experiment by Dr. Bellows. The material is not new, having been presented in such works as Duke-Elder's *Ophthalmology*. The book covers a wide range of information, beginning with embryology and chemistry and closing with an excellent chapter on senile cataract, including its operative and nonoperative treatment and complications which arise in removing the lens. A careful study is made of the structure and composition of the crystalline lens. The lens, as well as other tissues of the body, undergoes a continuous metabolic process of nutrient absorption and waste removal. When this metabolism gets out of balance, opacities, failing vision and other optical disorders follow. The chemistry of protein substances in the lens is treated at length in the belief that a better understanding of its processes might lessen the incidence of spontaneous cataract. Various developmental defects of the crystalline lens, cataracts due to ultraviolet radiation and to trauma, and cataracts resulting from endocrine dysfunction are discussed at length. Removal of the lens is one of the most delicate of surgical procedures and upon the skill with which it is done rests the future of the individual involved. Numerous illustrations and charts recommend this well-presented volume to the ophthalmologist and general surgeon.

Enjoyment of Art in America. Regina Schoolman and Charles E. Slatkin. Introduction by George Harold Edgell. 792 pp., 740 illus. J. B. Lippincott, Philadelphia, 1942.

The subtitle "A Survey of the Permanent Collections of Painting, Sculpture, Ceramics and Decorative Arts in American and Canadian Museums, Being an Introduction to the Masterpieces of Art from Prehistoric to Modern Times" explains the wide range of subject matter covered by the book, virtually the entire field of art, and makes it possible to readily locate where choice art objects are to be found without loss of time or trouble.

Profusely and excellently illustrated, many of the plates will be of great interest to the surgeon-artist, not only for their beauty but for their anatomical content. The rôle which anatomy plays in art can be traced as the ages pass before us. In some of these we can see how, when anatomy was neglected, the level of art fell, and then as anatomy became a serious study, art revived and became a living entity.

The book is clearly written and contains comprehensive notes and an index. To the busy medical man who is interested in art, this book supplies a long-felt want.

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Treatment of Surgical Shock and Embolism*

FREDERICK M. ALLEN, M.D., F.A.C.S.
NEW YORK, NEW YORK

A PAPER of limited length can undertake no more than to summarize the recent changes in treatment of surgical shock and embolism. The unusual distinction of the International College of Surgeons in preserving the rare privilege of medical free speech and publication without censorship or suppression furnishes an opportunity for a frank discussion. Practitioners have not as yet received a clear general statement of the revolution which has occurred in this domain. Not infrequently, powerful individual and institutional interests oppose a change which is so radically subversive of established positions, but today *many human lives depend upon* the development and utilization of knowledge in this important war problem. Therefore, it is urgent that the plainest possible account of facts be submitted to the judgment of the medical profession.

In introduction, primary and secondary shock should be differentiated. Primary shock is of nervous origin, located in the arterioles, characterized by vasodilatation. Secondary shock is of metabolic origin, located in the capillaries, characterized by vasoconstriction. The word shock alone ordinarily signifies secondary shock, because of its predominant importance. Its symptoms of retarded circulation, hemoconcentration, oligemia, anoxemia and tissue anoxia furnish only a superficial definition, but at least distinguish it from primary shock and establish it as a clinical e tity in spite of variability in differe types and different individual cases. a practical illustration of the distir tion, it was surprising that in meetin last summer in Chicago the preventi of hypotension by adrenaline or epl drine injections during spinal anesthe was compared with refrigeration f prevention of shock. Refrigeration p vents not only primary shock of tl kind, but especially secondary sho There is no nervous factor in seconda shock. The blocking of nerves or of t spinal cord has not the slightest inf ence to prevent this shock. Vasoconstr *tion being already present in seconda* shock, vasoconstrictor drugs are not on valueless but injurious. Spinal an thesia may add to the danger of sho but it has no resemblance to refriger tion in the prevention of shock and t resulting operative mortality.

Next is the combination of theoretic and therapeutic misconceptions in gard to the adrenal cortex, because the superficial resemblance between a renal cortical deficiency and shock. Cli ical and experimental proofs have final demonstrated that adrenal cortical e tract or desoxycorticosterone acetate worthless in shock. The few favorab reports seem explainable by failure the authors to make sufficient allowan for the benefit of the salt solution a ministered with the hormone. It is on regrettable that [illegible] [illegible] [illegible] wasted on a [illegible] [illegible] long-known [illegible] proved a generation ago that animals can survive complete removal of the adrenals for a week or more. Hence, shock which may kill in a few hours cannot be due to adrenal deficiency. The argument that shock may create an extra need for cortical hormone, or that an added supply of the hormone may help to overcome shock, encounters the fact that the superficially similar conditions are really opposite. The superficially similar escape of fluid and electrolytes from the blood is due to opposite directions of permeability in the two conditions. In adrenal deficiency, fluid and electrolytes pass from the tissues into the blood and out through the urine. In shock, diuresis is inhibited while fluid and electrolytes pass from the blood into the tissues. Corresponding to these facts, my experiments gave the impression that small doses of adrenal cortical extract are useless and large doses aggravate shock.

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*Presented at the Ninth National Assembly, United States Chapter of the International College of Surgeons, Philadelphia, Oct., 1944.

The related theory of potassium intoxication has also attracted an amount of attention which appears unfortunate in the light of the most rudimentary facts. English studies have revealed that the so-called crush injuries involving extensive masses of muscle may sometimes flood the body with considerable quantities of potassium. This may be viewed as a special complication, on a par with the renal intoxication in such cases, because there is sufficient proof that in typical shock the elevation of serum potassium is slight or terminal and mostly explainable by simple hemoconcentration. Among the elementary facts which should have prevented the setting up of this hypothesis are the following: (a) According to textbooks, potassium kills by stopping the heart. But death in shock regularly occurs by apnea, while the heart continues beating until stopped by anoxia. (b) The animal, and presumably the patient, in the very act of dying from shock can be restored, at least temporarily, by injections of saline solution or whole blood, but in potassium poisoning at such a stage nothing avails. (c) Potassium poisons not by absolute dose but by concentration. An overwhelmingly fatal injection of potassium becomes harmless if it is sufficiently diluted with a solution of a sodium salt. The body readily tolerates sufficient saline administration to relieve any threatening rise of blood potassium, but the severest shock cases are not thus saved.

Of more practical interest is the use of anesthetics and narcotics in shock. Although apathy and insensitiveness are characteristic of advanced shock, the wound which originally causes shock may be accompanied by such pain that morphine is given routinely, or the patient may need an operation under anesthesia. On the other hand, there is familiar proof that shock lowers resistance to such drugs, and conversely, anesthetics or strong narcotics reduce resistance to shock. Furthermore, as already mentioned, there is no nervous element in secondary shock, and blocking of nerve impulses does not arrest shock. A preponderant fact, however, is that exhaustion due to pain, restlessness, anxiety, etc., reduces resistance more than any of these drugs. Therefore the customary use of morphine and of anesthetics is not only a humanitarian necessity, but actually assists toward recovery under usual conditions. Anesthetists are aware of the dangers, and their skilled selection of agents which are least detrimental in shock cases need not be discussed here. Evidently the best anesthetic, when feasible, is refrigeration, which not only does not increase shock but helps to arrest it. Also the advantages of cold for simple sedation should be pointed out. For example, burns are one of the causes of shock accompanied by severe and prolonged pain, and their superficial location makes them accessible to cold treatment not only on the limbs but also on the trunk. One of the striking features is the transformation in appetite, spirits, strength and general condition when pain is controlled by temperature instead of by morphine, and only a person who has witnessed this contrast can appreciate the harm that narcotics produce along with their benefits.

Omitting many surgical details which are established and familiar, we may pass now to the essential treatment of shock aimed at the nature of the process. Shock being such a large military problem, a historical landmark was the study of the governmental Shock Committee in the first World War. The unmixed errors of their report have been publicized as an epoch-making achievement; they have been adopted in all standard textbooks, and the same combination of political, financial and academic authority is manifest under the present Office of Scientific Research and Development. The entire findings of the Committee—the dominant status assigned to the plasma proteins and colloids in general, the alleged uselessness or harmfulness of crystalloid solutions, the introduction of gum arabic without proof of benefit or exclusion of danger, the emphasis on plasma colloids rather than corpuscles even for hemorrhage, the supposed proof of intoxication in shock, the doctrine of irreversibility, the approval of heating shocked patients—everything was wrong and turned research backward for a generation. Independent investigation, after much difficulty and delay, has restored forward progress scientifically but has not yet succeeded in reforming treatment, especially in the governmental and military services. Advocates of centralized planning and control should take note of this example.

To show that this sweeping condemnation is not arbitrary or personal but is necessary for clearing the ground of prevailing fallacies, it is necessary to consider the two theories of shock on which ideas of treatment are based. First, it is undisputed that the experiments by which the Shock Committee supported the toxic theory were wrongly performed. In correcting them, Phemister, Blalock and their followers rushed to the opposite extreme of the pure physical theory, which is probably equally erroneous. It may be stated fairly that the weight of evidence and opinion now favors two factors in shock, namely a physical factor of fluid migration and a chemical factor in the form of unidentified tissue toxins. Rational treatment is then directed against either of these processes.

I. CONSERVATION OF BLOOD VOLUME

Proof of the importance of the physical factor is that death may undoubtedly be caused by depletion of blood volume and may sometimes be prevented by conservation of blood volume. The migration of fluid through vessel walls which is characteristic of shock may be complicated by hemorrhage, namely an escape of whole blood either externally or into the tissues. Rational treatment here consists in either preventing or replacing the fluid loss.

Saving fluid loss. The local saving of fluid becomes more logical in the light of the recent demonstrations that the abnormal vascular permeability is limited to the injured region; there is not an increase of capillary permeability throughout the body as was quite widely taught. Therefore, oozing from large surfaces, especially in burns, has been checked by tannic acid and other occlusive dressings, and th[illegible]ore recent emphasis on or casts to limit swelling of injured limbs. There is definite proof that such measures may sometimes suffice to prevent fatal shock. On the other hand, as the first praise of the tannic acid covering of burns was followed by its abandonment because of detrimental local effects, a warning may be proper regarding the present enthusiasm for tight limb dressings. It is an inescapable physiologic law that pressure is harmful to tissues. Even normal limbs are notoriously subject to gangrene if the swelling is too great or the bandaging too constrictive; but with damaged tissues the increased danger of necrosis and infection from the heat and pressure of dressings and casts is theoretically inevitable. Sulfonamides and penicillin may control infection but not devitalization. Since refrigeration is so vastly superior to occlusive treatment for burns, it may prove similarly superior to pressure dressings for limbs; or at least it may be used as a supplement to reduce pain, swelling and other consequences.

Replacement of fluid. Fluid injections to maintain blood volume hold the most important place in shock treatment. The benefit of saline infusions was recognized since their first use for Asiatic cholera in 1831, and they later were extensively adopted for other forms of shock. Then came the first World War with its academic-governmental condemnation of crystalloids and exaltation of colloids, and the most dismal record is the long series of ostensible confirmations in all the approved laboratories and by all the reputed authorities for twenty years afterward. Except for the monopoly of funds and facilities, my work which was published in 1939 would not have been so limited and could have been finished several years earlier. The essential fact is that the individual research which with trepidation I ventured to place in opposition to the regimented doctrines backed by such vast governmental and institutional resources was confirmed by subsequent workers, and no one reading the most recent literature can doubt that the specific need of the organism in shock is for water and sodium salts, not for plasma or any other colloids. (*Cf.* Katz, Friedberg and Asher;[15] Mylon, Winternitz and de Sütö-Nagy;[24] Parkins et al;[26] Scott, Worth and Robbins;[30] Rosenthal.[29])

Several details in the practical application of these scientific facts can now be considered.

(1) Rosenthal,[29] confirming my finding that salt solution is superior to plasma (even in equal volumes) for shock treatment, has added a new feature, namely, the advantage of administration by mouth as far as feasible. He also discovered the special suitability of sodium lactate for this purpose. Fox[14] has applied this principle to the treatment of burns with results apparently superior to any ever obtained with plasma. The preference for sodium lactate is based on convenience for oral administration and other minor advantages, and any physician not having the lactate solution available can anticipate essentially the same results with simple physiologic saline.

(2) Salt solution is inferior to plasma for hemorrhage, but even here it has far greater value than heretofore believed, and the tradition of its immediate escape from the vessels is false. If sufficiently large volumes are given, fearlessly replacing what passes into the tissues, an equilibrium is reached, so that the solution remains in the vessels and the circulating fluid volume is maintained. Thus, in an emergency, an acutely fatal hemorrhage can be compensated by saline infusions at least temporarily, within a very wide range, until the most extreme blood loss finally reaches a limit which makes pulmonary edema inevitable.

Rosenthal[23] and the Parkins-Lockwood[25] and Ivy-Dutton[18] groups agree with my findings on this point.

(3) The constancy of mistakes from the first World War persists not only in this, but also in the higher importance assigned to plasma proteins in comparison with corpuscles in treating hemorrhage. McKee and co-workers[20] have recently proved that a saline suspension of red cells is superior to plasma for this purpose. The ability of salt solution to maintain circulating volume is again illustrated.

(4) The great volumes of fluid frequently needed in shock are illustrated by Fox's customary administration of 7 to 10 liters (10 to 15 per cent of the body weight) in the first twenty-four hours of treatment for severe burns. Obviously there are states of circulatory weakness, cardio-renal-vascular disease and other complications which limit or contraindicate such fluid administration (Coller et al[7]). Ordinarily, however, in shock the massive quantities of salt solution are beneficial and safely tolerated, and one important point of superiority over plasma is that the latter is not only unavailable on such a scale, but also would be harmful or fatal in such volume.

(5) Many cases of shock, and doubtless the majority in military service, are complicated by hemorrhage. The advantages of plasma, therefore, are that it can be rather easily preserved and transported, and it serves a double purpose; it is an inferior substitute for salt solution in shock and an inferior substitute for whole blood in hemorrhage. However beneficial the present indiscriminate plasma treatment may have been, it lags behind the advance of research, which indicates that enormous quantities of plasma and an appreciable number of lives can be saved by intelligent selection of fluids, [illegible] massively for the acute [illegible] of [illegible] and whole blood as far as obtainable fo hemorrhage or anemia, and thus reserv ing plasma for its real uses, namely, as partial replacement for hemorrhage and secondary replenishment of plasma prote ins after large or prolonged losses. Eve for this latter purpose plasma can prob ably be granted only a subsidiary valu and writers who are fond of alarmin figures of plasma protein losses in burn and wounds may be challenged to prove first, that plasma is comparable wit whole blood for treating anemia; second that patients ever show injury from plasma protein depletion if anemia is prevented. The main criticism against the military services and their scientific advisers is that they are treating shock in this war on principles that were up to date in the former war.

animals often are enabled to survive for an entire extra day, they invariably die if the original shock was severe enough. These comparative results may be interpreted to signify that recovery is possible from the utmost hypotension, anoxia and other secondary processes, but death occurs from the one factor of true traumatic shock which is not reproduced in hemorrhagic shock, namely the toxin from wounded tissues.

No drug or other specific antidote for the hypothetical toxin or toxins of shock has been discovered. Bacterial products may be an important contributory factor but can scarcely be accepted as the true shock poison. Hence the demonstration (Aub et al,[4] Dze Fuh Pen,[11] Prinzmetal, Freed and Kruger[28]) of the remarkably rapid penetration and multiplication of microörganisms in injured tissues seems chiefly to emphasize the warning already given concerning the incubator action of dressings which retain heat and hinder circulation. There is interest in the painstaking studies of Green and Bielchowsky[5,9] identifying adenosine triphosphate as at least one of the long-sought shock toxins. The work of these authors and also of Noble[25] and Ungar[31] seems to prove the possibility of a considerable degree of immunization against shock. Theoretically, these results strengthen the toxic theory of shock, because an increased resistance against a mere circulatory change is less conceivable and becomes impossible if the claim of passive protection by a specific serum is confirmed. Practically, these findings apply only to prevention of shock, and there is no present hope of curing shock by an antiserum. There is reason to believe, however, that the training of soldiers by rough sports will develop general stamina and also increase resistance to shock.

The only known means of combating the toxic factor of existing shock is through temperature. The modification of temperature may be general or local.

Systemic hypothermia. The rectal temperature in shock may be normal or slightly above or below normal; but since the skin is usually cool the traditional treatment was to warm such patients with blankets or artificial heat. The pioneer in reform seems to have been Temple Fay.[13] Scattered clinical notes (Waters,[33] Perry,[27] Fay[13]) and precise laboratory studies (Elman et al,[12] Wakim and Gatch,[32] Cleghorn,[8] Green[17]) indicate that a cool environment and a moderate reduction of rectal temperature to perhaps 96° or 94°F. are most favorable. The difference between the harm of heating and the benefit of cooling may amount to the difference between life and death in some grades of shock, but in the severest shock, life may be merely prolonged and not finally saved. It also is not certain whether systemic hypothermia acts chiefly by reduction of toxin formation or by favoring peripheral vasoconstriction and reducing the tissue demand for oxygen.

Local hypothermia. The reduction of systemic temperature is applicable to all forms of shock, but is limited in degree. Local refrigeration is feasible only for limb wounds or superficial injuries (especially burns) of the trunk. The more radical reduction of temperature makes possible a more decisive arrest of the formation and absorption of tissue toxins. When an operation is contemplated a tourniquet should be applied and the limb chilled thoroughly to ice temperature, thus at once checking shock, hemorrhage, pain, infection and tissue devitalization. Such a patient is also ready for immediate operation without added shock, or the tourniquet application can be continued with safety for many hours if necessary. When no operation is anticipated, simple refrigeration is applied without a tourniquet, and though the chilling is less thorough it can be continued indefinitely. The ease and quickness of these procedures and the freedom to defer finished surgery recommend the method particularly for military emergencies with a sudden rush of battle casualties.

The testimony concerning refrigeration in civil surgery now appears sufficiently strong and unanimous to invalidate all excuses for the failure to provide for it in the Army and Navy. Limb wounds and burns are extremely numerous. Ice is available sometimes on land and generally on ships, or refrigerating apparatus can be had which is less cumbersome than some other equipment which is routinely provided. Both feasibility and benefit have been demonstrated in the few instances where junior medical officers have managed to try the method, and if there are doubts about the use on the fighting fronts, at least the lack of adoption in hospitals to which the wounded are so rapidly transferred is inexcusable.

We need not revert to the lack of anesthetics in winter campaigns in the more primitive countries at the beginning of the war, and the suffering that might have been saved if the development of refrigeration had not been delayed. Right now, the traumatic cases published by McElvenny[21] and by Mock[22, 23] typify a numerous class of wounds which inevitably occur in war and which are fatal without refrigeration. One apparent example of this class has come to public attention because the victim was a newspaper reporter. According to the press accounts published August 22, 1944, the jeep in which Tom Treanor was riding was crushed by a tank; he died the next morning on an operating table in a hospital during amputation of his left leg. The retention of clear consciousness indicated shock. The attempted amputation indicated that his other injuries were not entirely hopeless. This result may be compared with Mock's[22] cases, in which the general injuries were equally or more severe, also necessitating amputation of legs, but by refrigeration the operation was postponed for a week or two and the patients recovered. There is not the slightest valid obstacle to this procedure or the equipping of hospitals for it.

The inaction, however, seems chargeable less to the military services than to the lack of constructive advice from the official Committee on Medical Research. Opinions may differ as to whether this Committee and its subcommittees duplicated the scandal of the dollar-a-year experts of the former war by monopolizing millions of dollars of governmental research grants among themselves and a small institutional circle, or whether the authority and funds for the shock and refrigeration problems were best divided between heirs of the former Shock Committee who might suffer from brusque exposure of its errors, and academic representatives without records of previous experience or accomplishment in this field. I confess personal disappointment with, first, the hardships and delays of the unaided research on both saline therapy and refrigeration, then the years of refusal of a trial in civil practice, and now the years of refusal of a trial in military surgery, and being excluded from every form of participation in the war effort. The one important inquiry is whether or why the huge expenditures have purchased only a negative or minus contribution to this war problem. Against a few technical additions to work already inaugurated and mapped out by others may be balanced the Committee's failure to produce a single new idea in refrigeration or any other line of shock therapy, and its blocking of progress by not attempting to remove or actually encouraging prejudices, fears and blunders regarding the new methods. There has been neither planning nor sanction of conclusive tests to confirm or refute the preconceived ideas which thus far have prevented military provisions for the benefits already demonstrated in civil surgery. Also the new reduced temperature treatment for the frostbitten limbs of shipwrecked sailors would have received neither study nor trial up to now, if it had not been demonstrated in Canada and England. Our attempt to develop the burn treatment and other latent possibilities of refrigeration is blocked by denial of financing or coöperation. The usual polite reticence is not proper at a time when thousands in the military services are dying of shock and limb wounds and burns. If there is no evidence that the proposed methods can be helpful or even deserve a trial, I must stand responsible for exaggerated and offensive claims. But if it is finally proved that the methods are feasible and life-saving and the objections are arbitrary and imaginary, the guilt for suffering and death on such a scale cannot be excused by ignorance. Lacking reform in the policy or personnel of the narrow entrenched authority, the obstruction may be broken only by pressure of professional or public opinion. In that case the prospects are for a trial under the discredited "conservative" auspices, inviting failure. It is a risky and thankless duty to place on record a protest against the maneuvers which have postponed a decision to this late stage of the war.

EMBOLISM

In turning to the subject of embolism, I wish only to present tentatively a few very brief suggestions for discussion and possible trial by surgeons. Diagnosis is not involved. Assuming embolism or any other complete obstruction of a major limb artery, the proposals are as follows.

(1) Whether or not heat has been used in attempting to establish circulation, complete occlusion should call to mind the fact that high temperature accelerates and low temperature retards tissue devitalization and necrosis. Therefore at the earliest possible moment, even before or during transportation to hospital, the limb should be packed in ice or otherwise refrigerated. Pain, shock and spreading thrombosis are also thus reduced. If necessary, a layman can do this under instructions by telephone, to save even a slight delay.

(2) As soon as possible, a physician should apply a tight rubber tourniquet above the point of embolism or occlusion. The purpose is to assure thorough chilling, stop inadequate collateral circulation which carries warmth and blood for clotting into the distal parts, prevent pain, shock and tissue devitalization more completely, arrest thrombosis in distal vessels and the damage to endothelium by adhesion of thrombi, particularly to halt extension of thrombosis at the line of the tourniquet, and to make the patient ready for operation without added shock or anesthesia. This method should greatly extend the time limits for embolectomy and improve the results.

(3) After embolectomy or other repair, cooling of the limb should be continued, in addition to heparin and other aids, in such degree and duration as may suit the individual need. This use of cold is again to inhibit thrombosis and protect tissues whose circulation and vitality may be endangered. The cold penetrates most effectively where the circulation is poorest and the tissue need greatest.

(4) When a case is received too late for embolectomy, the procedure in the City Hospital is to refrigerate the limb radically with bare ice-bags or preferably with apparatus. Crossman[10] has described this method in embolism, and

Mock[23] and Bowers[7] in traumatic thrombosis. The advantages are control of pain and shock and prevention of gangrene and intoxication, affording a respite of days or weeks for building up constitutional strength, with the additional hope that the inevitable amputation may be at a lower level than if it had been performed in the immediate emergency.

(5) *It is a challenge to surgeons when* damage to a limited area of a main artery thus necessitates sacrifice of the limb. Even more impressive is the fact that at a certain stage of embolism and other accidents the only irreparable damage is in the intima, a restoration of circulation being easily possible except for recurrence of thrombosis due merely to roughening or loss of a small patch of endothelium. I venture to predict that surgeons will soon solve this problem. One of the obvious possibilities, in which our own plans have been blocked for years, has been included in the recent experiments of Blakemore, Lord and Stefko,[6] who, seemingly in ignorance of our published preservations of ligated limbs, have demonstrated the feasibility of amputating a dog's leg, refrigerating it for twenty-four hours, and then restoring it to its original position and function. They anastomosed blood vessels by vein-lined vitallium cannulas left permanently in place. A supply of living refrigerated veins ("vein bank") is seldom available, though the possibility exists that victims of partial or complete traumatic amputation may be transported *with their limbs refrigerated* long distances by airplane to a surgical center where repairs or restoration can be made one to several days after the accident.

Embolism is a far commoner event, and the problem of repair is simpler. In an exhibit with Dr. Crossman at the recent A.M.A. convention I illustrated a simple proposal for this purpose. It is based on the old-time cannula of Payr or Crile, with which surgeons are familiar, but an innovation consists in a slit permitting removal of the cannula. This can be used as a device for easy anastomosis of blood vessels. It can also be a means for lining an artery with a vein.

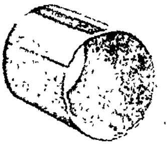

Fig 1. A piece of tin can or other metal, with edges smoothed, is bent to form a slit cannula.

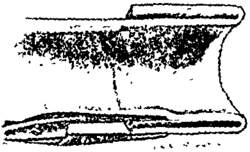

Fig 2. One end of a severed blood vessel is drawn through the cannula, cuffed back over it and retained by one or two clamps.

The arterial wall furnishes the necessary strength and the vein supplies the endothelium which is lacking. A saphenous vein can be taken from the patient himself, and though it is not as large as the femoral artery it can carry enough arterial blood to prevent necrosis of a leg, especially with the aid of refrigeration. The vein is nourished by the blood flowing through it, and the operator must avoid too much damage to the adventitia of the artery from which its nutrition is derived. Dog experiments carried on with Doctors Crossman and Armengol for perfecting the technic were interrupted by the usual lack of facilities and financing. The proposal is therefore offered to those who enjoy better opportunities, with the warning that preliminary trials must be made at least on the cadaver to master the technic. Some failures are to be expected, but with proper care no harm will result because the limbs in question would have to be sacrificed anyway.

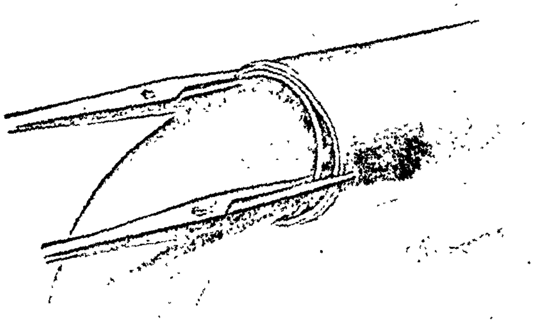

Fig. 3. It is then inserted into the other end of the severed vessel, and retained by one or two clamps. One or two lines of circumferential suture are now placed by plunging in the needle each time until it touches metal, assuring a leak-proof intima-to-intima union. Thereupon the clamps are released, the cannula drawn back from the site of anastomosis, pried open and removed.

This particular method may need to be improved or a better one devised, but the principle appears sound and useful. It is analogous to a skin graft, the vein segment supplying endothelium for the artery just as a full thickness skin graft supplies epithelium for a skin defect. If the vein wall stretches and atrophies, the endothelium can still persist and proliferate indefinitely. It also seems theoretically possible that the slit cannula may sometimes be found convenient for anastomosis of bile ducts, ureters or other passages.

SUMMARY

Primary shock is nervous, arteriolar, vasodilator. Secondary shock is metabolic, capillary, vasoconstrictor. Recent investigations of secondary shock have discredited the potassium intoxication theory and the adrenal cortical therapy. Although experiments in proof of the toxic theory were wrongly performed, the opposite extreme of the physical theory is equally erroneous. The best present evidence supports two coexisting factors: the physical factor of fluid migration and the chemical factor of toxins from injured tissues.

The combating of the physical factor, by conservation of blood volume, is accomplished by:

(a) Preventing escape of fluid, as by tannic acid and other impermeable coverings of burns, and pressure dressings or casts for wounded limbs. Such measures are definitely life-saving in some cases. But as tannic acid has been discarded

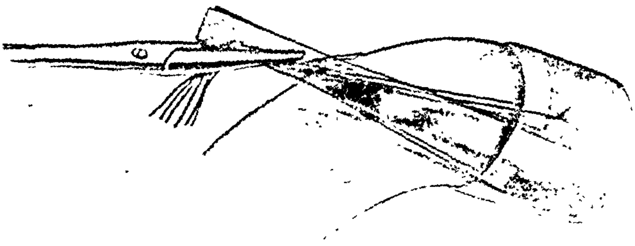

Fig. 4. The same principle is illustrated with a cannula provided with a handle, the cuffed-back vessel-end being secured by three untied retaining sutures, which are clamped to the end of the handle by a single hemostat.

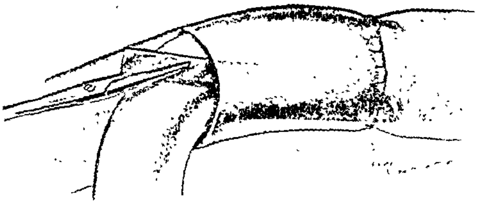

Fig. 5. A vein thus prepared can be inserted into an incision in an artery for any distance, according to the length of the handle. A circumferential suture line then establishes intima-to-intima union, after which the retaining sutures are pulled out, the cannula drawn back, pried open and removed By repeating this process with the other end of the vein segment in an opposite direction, this portion of artery is lined with vein. The incision in the artery is preferably transverse, in order that the final closure may not narrow the lumen.

because of injurious local effects, warning is necessary against the harmfulness of pressure, particularly on damaged tissues. Refrigeration may be a substitute for pressure or may reduce the injury of pressure.

(b) Replacing lost fluid. The specific need of the shocked organism is not for plasma proteins or any other colloids but for water and sodium salts (Allen[1]; Katz, Friedberg and Asher[15]; Mylon, Winternitz and de Sütö-Nagy[24]; Parkins et al[26]; Scott, Worth and Robbins[30]; Rosenthal[29]). Rosenthal[29] discovered the advantages of oral administration, especially of sodium lactate solutions. The large volumes often needed (too large to be supplied by plasma) are illustrated by Fox's[14] administration of 7 to 10 liters (10 to 15 per cent of the body weight) during the first twenty-four hours of treatment of severe burns. Plasma is only superior to saline for hemorrhage, and even here a saline suspension of red cells is superior to plasma (McKee and co-workers[20]). The archaic treatment of shock by the military services wastes enormous quantities of plasma and an unknown number of lives.

For combating intoxication, no drugs or other specifics are known, and only temperature is efficacious. A cool environment and slightly reduced rectal temperature (perhaps 96 to 94°F.) ap-

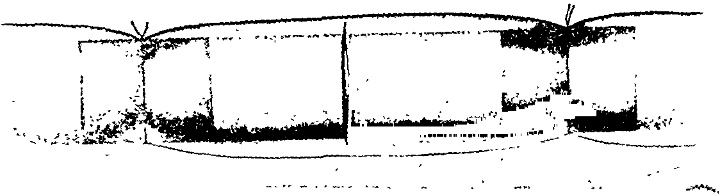

Fig. 6 Diagram of artery lined with vein, ready for suture of the transverse incision. Here it is assumed permanent cannulas are used instead of the removable slit cannula. Such ca[illegible] can [illegible]ained [illegible] ligation, which is easier and quicker than suturing. Non-absorbable cannulas [illegible] vit[illegible] serve this purpose, but experiments have been undertaken with absorb[illegible] decalcified bone, the final elimination of the cannula being [illegible]

toxicación de potasium y de la terapéutica adreno cortical. Aún cuando los experimentos en prueba de la teoria tóxica, fuéron erroneos en su ejecución, el extremo opuesto de la teoria física es igualmente erroneo.

La mejor prueba actual sostiene dos factores coexistentes: el factor físico de la migración de líquidos, y el factor químico de productos tóxicos de los tejidos dañados.

Combatiendo el factor físico por la conservación del volumen de sangre se efectua así: (a) evitando el escape de líquidos con vendaje de presión, estuco o refrigeración de extremidades dañadas; (b) reemplazando los líquidos perdidos, preferablemente por solución salina o de lactato de soda. Baja temperatura o refrigeración se recomienda para combatir intoxicación. En embolismo completo, la refrigeración debiera emplearse immediatamente. Se propone, en lo experimental, forrar una arteria dañada con un segmento de vena.

RÉSUMÉ

Le choc primaire est nerveux, artériolaire et vasodilateur. Le choc secondaire est métabolique, capillaire, vasoconstricteur. Les recherches récentes ont invalidé la théorie d'intoxication potassique et de thérapie cortico-adrénale. La théorie toxique et la théorie physique sont également erronées. Les meilleures données que nous possédons actuellement supportent deux facteurs coexistants: le facteur physique de migration de fluides et le facteur chimique de toxines provenant des tissus lésés. Pour combattre le facteur physique on essayera de conserver le volume sanguin en empêchant: (a) l'echappement des fluides, et en ayant recours à des pansements compressifs, bandages, attelles plâtrées, lotions réfrigérantes; (b) remplacement des fluides perdus préférablement par des solutions salines ou de lactate de sodium.

L'auteur recommande les températures basses et la refrigération pour combattre l'intoxication. Dans l'embolisme complet, la réfrigeration précoce doit être employée. L'auteur propose la doublure d'une artère lésée par un segment de veine.

Выводы

Первичный шок это шок нервный, артериоларный и сосудорасширительный. Вторичный шок это так метаболический, капиллярный и сосудосократительный. Последния исследования вторичнаго шока опровергают теорию интоксикации калием а также и терапию адренальной корой. Хотя опыты направленые к доказательству этой химической теории были произведены неправильно, все же крайне противоположная, чисто физическая, теория также ошибочна. Лучшия современныя показания поддерживают существование двух одновременных факторов: физический фактор, состоящий из перемещения жидкости, и химический фактор, произведенный токсинами от поврежденных тканей.

Физический фактор преодолевается сохранением кровеного обʼема посредством: (а) предотвращения потери жидкостей, сдавливающими перевязками, гипсом и замораживанием раненных конечностей; (в) возмещения потерянной шидкости, предпочительно, соляным раствором или раствором молочно-кислаго натра.

Для предохранения интоксикации рекомендуется понижение температуры или замораживание. В случае полнаго эмболизма замораживание должно бйть произведено немедленно. Как опыт, предлагается выстилка раненной артерии венозным сегментом.

Ulcerative Leiomyoma of the Stomach*

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ACCORDING to a review of the literature, leiomyoma is a universal disease in that it affects any organ and any part of the body. Leiomyoma of the eyes, ears, skin, lungs, heart, liver, stomach and intestinal tract has been reported. Leiomyoma of the gastro-intestinal tract is generally considered, however, by most surgeons, as a not so frequent affection.

Depending on the location of this disease, the symptoms and manifestations are somewhat different. Certain clinics have reported several cases over a period of years, while in others the disease has been rather sparse; but the accumulated evidence of all the cases recorded, affecting all parts of the body, comprises a sizeable group. In the past seventy-nine years, in the Jewish Hospital, for instance, only two cases of leiomyoma of the stomach have been operated on. In 1929, when the "Diagnostic Standard Nomenclature of Disease" was started, the only cases recorded are those just mentioned above. In the Mt. Sinai Hospital, only one case has been operated on in the past twenty-three years and that affected the jejunum. A careful search of the autopsy records in this hospital, for the past forty-four years, also reveals the fact that leiomyoma of the stomach was never encountered.† (Fig. 1.)

The two cases recorded in the Jewish Hospital were operated on by me.

CASE REPORTS

Case 1. J. F. R., aged 54, admitted to the hospital on 5/14/37. Patient was in good health until two days before admission, when he was seized with moderate mid-abdominal pain, cramplike in nature. The pain seemed to get gradually worse. Enemas were ineffectual. The pain persisted the following day when he vomited a greenish material. He was given a liquid diet following the onset of pain. He took two ounces of castor-oil which gave him bowel movements of "black material." Pain was more constant and severe on day of admission, accompanied by vomiting. Vomitus was blood stained. He had a productive cough. No history of previous gastro-intestinal symptoms. His general health had

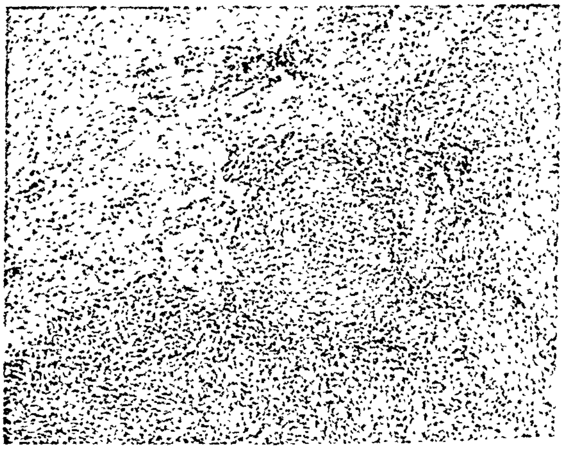

Fig. 1. Leiomyosarcoma of jejunum. Note the invasion of the tumor in the edematous thickened serosa. This represents the only case ever operated on in the Mt. Sinai Hospital (Dr. E. Eliason).

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*Presented at the Ninth National Assembly, United States Chapter of the International College of Surgeons, Philadelphia, Oct., 1944.

**Services of Jewish and Mount Sinai Hospitals.

†In the past ten years in the Jewish Hospital, out of 110,000 admissions and 3500 post mortems, 2 cases of leiomyosarcoma of the stomach were recorded. In the Mt. Sinai Hospitals there were 84,000 admissions and 1000 post mortems in ten years out of which one case of leiomyosarcoma of the jejunum has been recorded.

been good, but for the past year or so he noticed that he was losing weight. He was subject to frequent colds and sinus trouble. Appetite was good, elimination fair and no urinary symptoms. In 1918 he had a left herniorrhaphy and in 1935 underwent an operation on the right side for hernia.

Blood Pressure, $\frac{140}{90}$. *Urine Examination:* Resection, alkaline; Specific gravity, 1030; Albumen, plus; Sugar, 0; Ac., plus 3; Diac., plus; hyaline casts. W.B.C. and few epithelial cells. Blood Count: Hem., 92; R.B.C., 4.9; W.B.C., 26,000; Neutrophiles, 86; Lymphocytes, 14. *Wassermann,* negative. *Blood Sugar,* 103. *Blood Urea,* 23 mg. Operation was performed on 5/22/37 and the patient was discharged on 6/4/37.

X-ray report: The esophagus is normally patulous to liquids. The stomach is normal in calibre and position. Peristalsis is normal. There is a large filling defect in the antrum pylori which cannot be filled at any time during the study.

Description of operation: Under spinal anesthesia, with the patient in the Trendelenberg position, an upper right rectus incision was made down to the peritoneum, which was opened and the gall bladder found to be normal in size and containing no stones. However, an infiltrating mass was felt, extending a little above and below the pylorus. A Payer clamp was placed on the duodenum and the pylorus was separated. The duodenal stump was inverted with a purse-string suture. Two-thirds of the stomach was removed by means of two Payer clamps and the use of the electric cautery. One-half of the remaining stomach was then closed off with linen thread. The jejunum was brought up and anastomosed to the remaining half of the stomach. There was some slight constriction of the anastomosis when completed, although the opening was quite free and permitted free passage of gas. A jejuno-jejunostomy was considered advisable. The tumor mass was opened and found to contain three ulcers, one of which was gangrenous. The peritoneum was closed with No. 2 chromic catgut, muscle and fascia in layers and the skin with clips and retention sutures. No drainage. *Operation: Hofmeister-Polya operation, jejuno-jejunost[illegible]*

Pathologic report:

Macroscopic: Specimen consists of portion of stomach measuring 11 by 12½ cm. The antrum pyloris contains a tumor mass which is oval in shape, measuring 5 by 4 cm. The tumor is intramural and it appears to involve the muscularis coat. The submucosa and the mucosa is intact with the exception of three small dimples, which are either beginning ulceration or possible contractures.

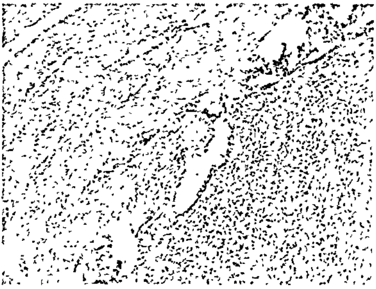

Fig. 2. *(Case 1)* Leiomyosarcoma of stomach. Note the tumor invading the muscle. Operation performed in 1937.

Microscopic: Section of stomach shows the mucosa to contain a large number of gastric glands lined by pyramidal shaped cells. There is no loss of polarity. Localized areas of ulceration are observed in the mucosa. A number of lymphocytic cells are seen in the submucosa. The mucosa and antrum pylori show no neoplastic changes. The glandular elements are orderly and open into widely patent ducts. A small number of lymphocytic cells are present in the mucosa. The nuclei lie about the base of the individual cells. The muscularis contains a very large number of abnormal cells. Many of these contain bizarre shaped nuclei. The nuclear chromati are stipled. Some of the cells are multi-nucleated. The tumor shows definite invasive properties. Occasional mitotic figures are seen. There is considerable variation in the size and shape of the [illegible] cells. A number of nucleoli are [illegible] of the [illegible] are large [illegible] of dilated [illegible]

Diagnosis: Leiomyosarcoma of antrum pylori (Fig. 2).

Comment: This is the first case I ever operated on for ulcerative leiomyoma of the stomach. Ulcerative leiomyoma of the stomach does not seem to be as common as the simple type of tumor.

A subtotal gastrectomy was performed of the Polya and Hofmeister type. In addition a jejuno-jejunostomy was performed.

Recent history: In April, 1944, the patient was consulted for the purpose of follow-up. He stated that he was never in better health. He had gained twenty pounds in weight and had never missed a day since he was able to return to his work.

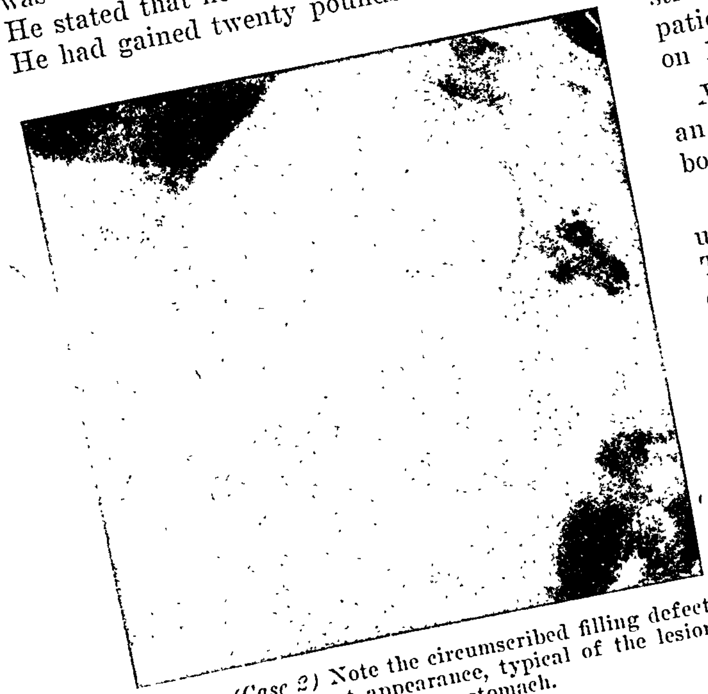

Fig. 3. *(Case 2)* Note the circumscribed filling defect and its punched-out appearance, typical of the lesion found in the stomach.

Case 2. M. E., aged 42. While in the Wills Eye Hospital, being treated for an ulcer of the cornea by Dr. L. Lehrfeld, he was suddenly stricken with a huge hemorrhage about midnight on Jan. 21, 1944. He vomited a large quantity of blood. This was accompanied with pallor, rapid pulse and all signs of a loss of a large volume of blood. Transfusions were necessary. His hemoglobin dropped to 50 and the red blood cells to 2,500,000. On account of the hemorrhage, without any previous gastric symptoms, a snap diagnosis of leiomyoma was made. This was partially confirmed by means of the x-ray. Since that time he had tarry stools every day and anorexia, but no vomiting, indigestion or flatulence. Patient was obese but did not appear acutely ill. Past medical and family history unimportant. Heart and lungs showed no abnormalities. No masses could be felt in a rather flabby abdomen. No pain or tenderness.

Blood Pressure—$\frac{115}{105}$; *Urine:* Reaction, acid; Specific Gravity, 1.020; Albumen, neg.; Ac., neg.; Diac., negative. *Biochemistry:* Sugar, 130 mg.; B.U.N., 16.5 mg. Blood: Hem., 58; R.B.C., 3.1; W.B.C., 87,000; Seg., 79; Ly., 26. *Feces Examination:* Occult Blood, strongly positive. *Wassermann*, negative. The patient was admitted to the Jewish Hospital on 1/17/44 and discharged on 2/6/44.

X-ray report: There is x-ray evidence of an ulcerative polypoid adenocarcinoma of the body of the stomach. (Fig. 3.)

Description of operation: With the patient under continuous spinal anesthesia, in the Trendelenberg position, a right pararectus incision was made. The peritoneum was opened and a tumor the size of a small lemon was palpated in the fundal portion of the stomach. One small nodule was felt in the left lobe of the liver. A Hofmeister-Polya operation was then performed on the stomach. It was necessary to bring the jejunum through the transverse mesocolon for this anastomosis because of the extreme amount of fat in the omentum. A jejuno-jejunostomy was then done. Over each side of the anastomosis a small layer of fat was sutured in place. One rubber tissue drain was placed in the site of the gastric anastomosis and ten grams of sulfanilamide powder were placed in the abdomen. The wound was closed with through and through dermal sutures. The patient received 5 per cent glucose and blood on the table, and in spite of his obesity he withstood the operation very well.

Operation: Resection of stomach, posterior Polya-Hofmeister, *jejuno-jejunostomy*.

Pathologic report:

Macroscopic: Specimen consists of a portion of stomach removed surgically, measuring 12 x 9 cm. in its longest diameter. The serosal surface is slightly inflamed. The wall measures 5 mm. in thickness. The mucosal rugae are prominent and not inflamed. One portion of the wall is occupied by a spherical nodule, measuring 3½ cm. The mucosa overlying is smooth, slightly inflamed and in one portion there is an ulcer crater 1 cm. across and 1 cm. deep. The nodule does not appear to have perforated through the outer wall of the stomach. The nodule is fairly firm and cuts with slight resistance and appears to be a well encapsulated mass of pale lobulated tissue. (Fig. 4.)

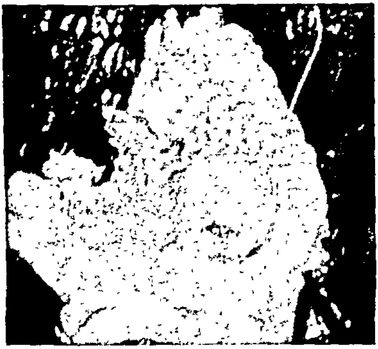

Fig. 4. *(Case 2)* Specimen of stomach with the ulceration shown about the middle of the tumor.

Microscopic: Section of tissue shows a preservation of the gastric mucosa appearing in folds. A number of chief and parietal cells are observed. The muscularis and mucosa are normal. Springing from the muscularis is a neoplasm composed of a large number of bundles of interlacing fibers. The nuclei are vesicular in shape and fairly homogenous. Occasional eosinophiles and mononuclear cells are observed. The nuclear chromatin is stippled. Occasionally a mytotic division is noted. (Fig. 5)

Diagnosis: Leiomyosarcoma of stomach (low grade malignancy).

Summary: This was a second case in eleven years I operated on for ulcerative leiomyoma of the stomach. The history here again was characteristic—a sudden devastating hemorrhage without any previous history of a gastric disturbance of any kind. The patient was extremely obese, with one of the fattest great omenta ever encountered. It was so fat that it precluded an ante-colic anastomosis. Instead, a posterior Hofmeister-Polya operation was performed. Judging from the microscopic report of this tumor, there is a possibility that the nodule felt in the liver was a metastatic growth.

In a review of the literature, some interesting facts have been revealed. It is generally considered by all surgeons that gastric leiomyoma is a rather rare occurrence. Many years may lapse before a first case is encountered. Bloom and Williams (quoted by Rienets[21]) state that the patient on whom they operated was the first registered in the Medical College of Virginia Hospital in the past fifteen years. Balfour (quoted by Rienets[21]), in a discussion before the staff meeting in the Mayo Clinic, stated that these tumors are not considered common, and that it was surprising to find so many at autopsy. He stated that a patient with repeated attacks of hemor-

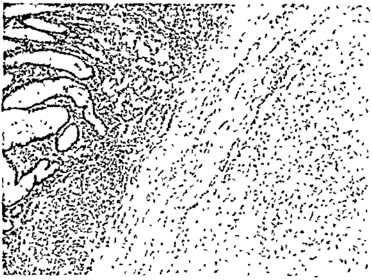

Fig. 5. *(Case 2)* Leiomyosarcoma of the stomach invading the submucosa. A small nodule was found in the liver. Operation in 1944.

TABLE 1

LEIOMYOMA OF STOMACH

Review of Cases Since 1930

NAME OF DOCTOR	AGE OF PATIENT	SYMPTOMS	X-RAY	OPERATION PERFORMED	BENIGN OR MALIGNANT	REMARKS
Down, H. I. (1930)	66	Severe hemorrhage five years before admission to hospital followed by fainting. Dull epigastric distress.	Polyp post. wall.	Excised with the cautery.	Benign	Macroscopic examination revealed no ulceration on the intragastric portion of the tumor.
Willis, R. A. (1930)	76	Pain in lower back. Lump in left upper quadrant. Diarrhea followed by constipation.		Autopsy.	Benign	Died suddenly with acute dyspnea at age of 81. Tumor of stomach in middle of post. wall attached by pedicle.
Gomez de Rosas, N. (1932)	46	Pain in right flank. Chronic constipation. Swelling of abdomen. Loss of weight.	Intragastric tumor extending from fundus to pylorus.	Partial gastrectomy.	Benign	Tumor size of orange.
Meyer, K. and P. Rosi, (1933)	35	Weakness, vertigo and pallor. No pain. Tarry stools.	Smooth, round filling defect in pars pylorica.	Sleeve resection.	Benign	Ulcer on top of tumor.
Eliason, E. L. (1933)	20	Gastro-intestinal hemorrhage. Pain in lower left quadrant. Tarry stools.	Duodenum large and normal. No evidence of abnormalities in small intestines.	Resection and lateral anastomosis.	Leiomyosarcoma	Only patient with leiomyoma reported in Mt. Sinai Hospital in 44 yrs. Recurrence of tumor two years later. Lesion was situated in the jejunum.
Jones, R. D. (1935)	58	Epigastric pain, nausea, distention, diarrhea and melena.	Filling defect near pylorus.	Tumor excised.	Benign	Tumor size of English walnut. Authors do not consider leiomyoma a rarity.
Denham, J. K. (1936)	55	Severe attack of melena. Indigestion 16 yrs. Hemorrhage	Large filling defect in pars pylorica.	Sleeve resection.	Benign	Tumor size of orange.
Conway, J. H. (1936) Case #1	41	Gastric pain for nine years. Sudden hematemesis.	Defect lesser curvature thought to be ulcer.	Diamond shaped section of stomach and post. gastroenterostomy.	Benign	Gastric hemorrhage made operation imperative. Patient well 19 months later.
Case #2	44	Anorexia. Lost 28 lbs. Epigastric pain 5 yrs. No melena or hematemesis.	Persistent filling defect of antrum, both curves.	Polya-Mayo resection.	Benign	Tumor the size of a silver dollar was in the prepyloric region. Uneventful recovery.
Lindquist, J. L. and H. E. Mock (1937)	61	Severe attack of nausea, hematemesis and syncope. Indigestion four years.	Filling defect on greater curvature.	Excised by cutting pedicle at site of attachment.	Follow-up period planned in order to discover whether tumor was benign or malignant.	Tumor like a small hard rubber ball with crater-like ulcer on its dome.
Mott, W. W. (1937)	58	5 wks. previously epigastric distress followed by tarry stools.		Base of tumor excised with an ellipse of the posterior wall of stomach.	Benign	Tumor size and shape of bantam egg. Two half-inch slits on surface of tumor.

TABLE 1—*Continued*

LEIOMYOMA OF STOMACH

Review of Cases Since 1930

NAME OF DOCTOR	AGE OF PATIENT	SYMPTOMS	X-RAY	OPERATION PERFORMED	BENIGN OR MALIGNANT	REMARKS
Hartman, H. H. and J. D. Camp (1937)	40	Attacks of indigestion six years prior to admission.	Irregularly rounded filling defect in greater curvature of lower *third of stomach.*	Partial gastrectomy and posterior Polya type of anastomosis.	Benign	Large, pedunculated mass 11 cm. in diameter. Stomach also contained a polyp which was found to be carcino*matous*
Cabot Case 23361 (1937)	49	F [illegible] stools and loss of consciousness.	Smooth oval tu- [illegible] neath the esophageal orifice.	Excision of stomach wall with tumor.	Leiomyosar*coma*	1 cm. ulceration slightly above *center of tumor.*
Behrend, M. (1937)	54	Pain two days prior to admission, loss of weight, vomited greenish material, tarry stools.	Filling defect in pyloric area.	Hofmeister-Polya and jejuno-jejunostomy.	Leiomyosarcoma	Ulcerative type of tumor. Patient has been well and attending to all his duties since operation
Collins, F. K. and D. C Collins (1938) Case #1	46	Symptoms of obstruction		Gastroenterostomy, end to side jejuno jejunostomy.	Benign	*Only gastric* fibromyomata reported in 81,000 admissions to Hollywood hospital. Authors believe leiomyoma is probably the most common of all benign gastric tumors
Case #2	41	No previous gastric symptoms. Melena came on suddenly followed next day by hematemesis.		Local excision of tumor.	Benign	Only gastric leiomyoma recorded in over 33,000 admissions to Santa Monica Hospital.
Sworn, B. R. and T. V. Cooper (1938)	59	Gradual loss of weight, nausea, vomiting, epigastric pain. *No hematemesis or melena.*	Large filling defect lesser curvature.	Tumor and small area of stomach excised with diathermy knife.	Benign	Tumor size of tennis ball.
Toland, G. G. and W. P. Kroger	49	Symptoms favored diagnosis of retroperitoneal tumor.	Suggested a tumor in region of stomach	Tumor excised from stomach.	Benign	Tumor was disclosed by peritoneoscopy. It weighed 1½ lbs., was situated on the post. wall and was developing extra-gastrically.
Ball, Sir Girling (1939)	65	Severe hematemesis, melena and more serious bleeding causing collapse.	Defect along lesser curvature	Partial gastrectomy. Modified Polya-Moynihan.	Benign	Regarded first as an early carcinoma but microscopic examination proved it to be benign leiomyoma.
Roof, C. S. (1939)	42	Symptoms resembling peptic ulcer. Pain two hours after meals relieved by vomiting. Tarry stools and extreme weakness.	Greater curvature in pars media displaced anteriorly and to the right by a mass.	Excision with small cuff of stomach wall by means of cautery.	Benign	Tumor the size of a grapefruit lying between stomach, co*lon, spleen and diaphragm,* attached to stomach by small pedicle.
Edwards, H. and E. E. Lewis (1940) Case #1	70	*Pain after meals for 18 mos* followed by tarry stools.	Oval rarefaction in upper part of body of stomach.	Sleeve resection	Benign	Large polypoid mushroom-like mass in the fundus of the stomach, ulcerated on the

TABLE 1—*Continued*

LEIOMYOMA OF STOMACH

Review of Cases Since 1930

NAME OF DOCTOR	AGE OF PATIENT	SYMPTOMS	X-RAY	OPERATION PERFORMED	BENIGN OR MALIGNANT	REMARKS
Case #2	68	Upper abdominal pain and flatulence. Loss of weight.	Large filling defect on greater curvature.	Excision with underlying portion of stomach wall.	Benign	Subserous tumor size of hazel nut.
Case #3	49	Severe indigestion, tarry stools and profound anemia.	Abnormal translucent area in stomach near fundus.	Excision of tumor through mucosa of stomach.	Benign	Tumor of polypoid type 3½" x 2½", growing from posterior wall.
Cabot Case #26292 (1940)	58	Acute epigastric distress for 28 yrs. Vomiting, loss of appetite. Shortly before admission, tarry stools.	Large, oval, smooth mass attached to left curvature by broad base.	Subtotal resection.	Benign	Gastroscopy showed the tumor in the body of the stomach. It was of a nonulcerating type.
Lahey, F. H. and B. P. Colcock. (1940) Case #1	39	Hemorrhage. Lost 12 lbs.	Egg size ulcerated tumor lower portion of stomach.	Subtotal resection.	Low malignancy.	
Case #2	27	4 yrs. before admission tarry stools.	Intramural filling defects.	Total gastrectomy.	Leiomyosarcoma.	The predominating intragastric types tend to become ulcerated. They possess real dangers of sarcomatous degeneration, usually of a low grade. Authors do not consider these lesions rare.
Case #3	60	Indigestion 15 years. Faintness last 6 years.	Filling defect lesser curvature.	Subtotal gastrectomy.	Benign	
Case #4	51	Dark stools.	Filling defect pyloric region.	Subtotal gastrectomy.	Leiomyosarcoma.	
Case #5	40	Severe hemorrhage 9 mos. before operation. Black stools 1½ yrs. ago.	Filling defect pyloric region.	Subtotal gastrectomy.	Benign.	
Case #6	47	Four weeks before admission hematemesis.	Mass fundus of stomach.	Submucous excision.	Leiomyosarcoma. Low malignancy.	
Case #7	45	Persistent anemia and weakness for 2 years.	Oval pedunculated mass mid-portion of antrum.	Subtotal gastrectomy.	Leiomyosarcoma.	
Whyte, D. (1940) Case #1	53	Indigestion, hematemesis and tarry stools.		Excised with a 2 cm. margin of stomach wall. Stomach repaired.	Benign	Tumor on greater curvature. Author believes leiomyoma to be a rare tumor.
Case #2	51	No indigestion. Nausea, sweats, hematemesis.	Peculiar large round filling defect in upper part of pars media.	Partial gastrectomy with removal of growth.	Benign	Tumor on upper part of pars media.
Christopher, F. et al. (1941)	11	Sudden emesis of brown fluid occurring several times.	Tumor mass encroaching on duodenal bulb, antrum and body of stomach from lesser curvature.	Hofmeister-Polya with anastomosis of jejunum and proximal portion of stomach.	Malignancy suspected.	The diagnosis after the operation was gastric neoplasm of [illegible]

TABLE 1—*Continued*

LEIOMYOMA OF STOMACH

Review of Cases Since 1930

NAME OF DOCTOR	AGE OF PATIENT	SYMPTOMS	X-RAY	OPERATION PERFORMED	BENIGN OR MALIGNANT	REMARKS
Halperin, P. H. (1941)	58	Pain, loss of weight, tarry stools and vomiting of coffee-ground material.	Large filling defect, size of small orange, involving pars media on lesser curvature side.	Resection of stomach from above tumor mass to below the pylorus with Payr clamps	Benign	Wangensteen suction postoperative. Author states that the number of leiomyomas of the stomach, which have been operated on is exceedingly small.
Levi, S. I. and J. S. Horn. (1941)	65	Intermittent indigestion for 15 yrs. No vomiting or loss of weight. Admitted with severe hematemesis. Hgb. 30 per cent.	Large filling defect high up on anterior walls of stomach. Circumscribed and well defined.	Modified Polya operation.	Benign	Patient was admitted for an emergency operation.
Bloom, N. and C. Williams. (1942)	68	Two fainting spells. Tarry stools. Vomited blood.	Filling defect of cardiac portion.	Pedicle clamped. Excision of tumor.	Benign	Only patient with leiomyoma in 15 years in Virginia Hospital.
Martel, G. E. (1944)	42	Secondary anemia and profuse melena.	Filling defect uppermost portion of greater curvature.	Radiotherapy. Total 5000 r.	Benign	Patient improved. Author believes leiomyoma is a relatively rare form of gastric tumor.
Behrend, M. (1944)	42	Hemorrhage, tarry stools and anorexia.	Evidence of an ulcerative polypoid adenocarcinoma of the body of the stomach	Posterior Polya-Hofmeister. Jejuno-jejunostomy.	Leiomyosarcoma.	Patient is well 10 months after operation

dred post-mortem examinations of the stomach, in which forty-three leiomyomas were found in thirty-two stomachs. Six of them had undergone carcinomatous changes. In a third group, there were thirty-four leiomyomas in thirty stomachs. In the fourth group of twenty-one leiomyomas, fourteen were removed at operation. All sexes were affected equally, and the average age was 51.4 years. In follow-up records of nineteen patients, there were no recurrences. Davidson, P. B.,[5] reports thirty-one cases collected from Boston hospitals. Twenty of these were autopsy findings. In eleven cases operated on, various diagnoses were made. In order to make a diagnosis, he states, there should be a regular filling defect, with a crater deformity, where ulceration has occurred. The question of malignancy of leiomyoma was considered. Seagliosis, G.,[23] states that in the Mayo Clinic, myoma constituted 0.44 per cent of all gastric tumors from 1907 to 1921. He quotes Eliason and Wright as reporting 325 cases in 1925. They claim that 60 per cent of all simple gastric tumors are leiomyoma. Huhnermann estimates four myomas in every 1125 tumors of the stomach, or 0.35 per cent. Morgagni in 1762 was the first to observe myoma of the stomach. Seagliosis states that, while myomas may affect those of middle age more frequently, a tumor has been reported in a child eight years old and in persons of advanced age. The most common location is the pyloric end of the stomach. According to Karl Brass,[2] from 1923 to 1938 fifteen cases of nonmalignant cases of the tumor of the stomach came to the Frankfurt Pathologic Clinic. Five were round-celled blastoma and ten were malignant myoma. Three other cases of gastric myoma were reported—two with fatal hemorrhage and one with perforation. Lahey, F. H. and Colcock, B. P.,[16] report seven cases of which five showed sarcomatous degeneration. They conclude that leiomyoma is not rare. Minnes and Geschickter cite 65.3 per cent of simple leiomyoma. The youngest was a child 9 years old and the eldest a man of 78. Petro Leon[17] reports that Nigrosoli, in 1927, collected 211 cases of myomatous tumors of the stomach and of these ninety-nine were myoma. Melnick, in 1932 found 309 cases reported in the literature.

X-ray: Radiologists often are able to make a diagnosis as a result of the symptoms and the reading of the plates. Edwards and Lewis[11] quote Moore as giving some interesting signs in the reading of x-ray plates, namely, (1) a filling defect that is circumscribed and punched out in appearance. (2) The filling defect is usually on the gastric walls, leaving the curvatures regular and pliant. (3) While the rugae are obliterated in the immediate area of the tumor, the rugae surrounding the tumor are normal in arrangement and distribution. (4) Little or no disturbance of peristalsis and retention is uncommon, except when the tumor is near the pylorus. (5) They do not reveal a niche nor is there any evidence of incisura or spasm. Gastroscopy will confirm the diagnosis.

From the above table, it should be noted that all types of gastric operations have been performed for leiomyoma of the stomach. The operations range from the simple removal of a tumor with a long pedicle, an excision of a sessile tumor with a section of the stomach, a simple gastrostomy to a sub-total gastrectomy, followed by the different types of the Polya operation (ante-colic or post-colic), and, finally, a complete gastrectomy is performed, depending on the character and position of the lesion found at the time of operation. Out of thirty-nine cases reported in this table, twenty-eight proved to be benign, ten were malignant and there was uncertainty about one case. Those that are malignant are usually mild in character. The occasional case may be quite malignant with metastasis found at operation or some time after the recovery of the patient. The incidence of recovery following operation is high.

CONCLUSION

1. The youngest patient who had been operated on found in literature was 8 years old, and the eldest was 78.
2. Leiomyoma of the stomach is considered a rare occurrence by many surgeons, although there are differences of opinion upon this subject. In seventy-nine years, since the founding of the Jewish Hospital, there are recorded two cases. In the Mt. Sinai Hospital, founded in 1900, only one case has been reported. The lesion was in the jejunum.
3. It must be reiterated that leiomyoma of the stomach, in the personal experience of any one surgeon is a rare condition.

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SUMARIO

1. El paciente más jóven que fué sometido a la operación, según la literatura, tenía edad de 8 años y el de más edad de 78.

2. Leiomioma del estómago, en el concepto de muchos cirujanos ocurre rara vez, aún cuando existen diversas opiniones sobre ese punto. En setentainueve años desde la fundación del Hospital Judio de Filadelfia, sólo dos casos son relatados, y en el Hospital Mt. Sinai, fundado en 1900, sólo a un caso se hace referencia y la lesión se desarrolló en el jejuno.

3. Debe reiterarse que leiomioma del estómago, en la experiencia individual de un cirujano, es rara.

RÉSUMÉ

1. Le plus jeune opéré était âgé de 8 ans; le plus âgé avait 78 ans.

2. Les léiomyomes de l'estomac sont rares. Il faut admettre qu'il y a une différence d'opinions sous ce rapport. Dans soixante-dix-neuf années, il n'y eut que deux cas à l'Hôpital Israélite. A l'Hôpital Mt. Sinai fondé en 1900, il n'y a eu jusqu'à présent qu'un cas. La lésion était dans le jejunum.

3. Nous répétons que les léiomyomes de l'estomac sont d'une grande rareté. De nombreux chirurgiens n'en ont jamais rencontré.

Выводы

(1) Обзор *научной литературы* показывает, что самому молодому оперированному *пациенту было восемь* лет, а самому старому семьдесят восемь.

2) *Лейомиома желудка* считается многими хирургами *очень* редкой болезнью, хотя существуют по этому вопросу разныя *мнения.* За семьдесят девять лет с основания Еврейскаго Госпиталя (Mt. Sinai Hospital) основанном в 1900 году *был* доложен только один случай, в котором было поражение jejunum.

(3) Тем не менее в *личном* опыте всякаго хирурга лейомиома является большой редкостью.

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THIS IS YOUR COUNTRY TO HAVE AND TO HOLD

KEEP HER FOREVER SAFE AND STRONG

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Surgeons and Events

by

DR. MAX THOREK

SERGEI S. YUDIN*

Sergei S. Yudin, prominent surgeon of the Soviet Union, was born in 1892.

At the age of twenty-two he was graduated from the Medical School of Moscow University. He served at the front during the First World War. Following the War he became a Zemstvo physician and was assigned to Zakharino sanatorium near Moscow. It was here that he initiated his surgical career with his first gastric resections and thoracoplasties.

In 1922 Yudin was transferred to a small hospital in Serpukhovski, which attracted many visiting surgeons because of the brilliancy with which he presented his cases before the Moscow Surgical Society. By 1938 his technic of radical resection of perforated and gastric ulcers was widely discussed throughout the Soviet Union.

In 1926 he was sent to the United States by the Soviet Government for a period of six months' study. At this time Yudin visited the Mayo Clinic and those of Drs. Kelly, Babcock, Crile and Cushing.

Upon his return to Russia he became Director of Surgery of the Sklifasovski Institute for Traumatic Diseases, which receives all emergency cases of Moscow, totaling 60,000 per year.

Sergei Yudin, F.I.C.S. (Hon.)

At Yudin's initiative, extensive studies were made of the biochemical properties of blood, and it was his pioneer work in the use of cadaver blood in transfusions that led to the use of blood banks. In the Sklifasovski Institute 5000 transfusions of cadaver blood were made within a period of twelve years, and Yudin's method was widely adopted.

According to the figures published by

(Continued on page 451)

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*From an article by Dorothy Halpern in "The American Review of Soviet Medicine," February, 1944.

Ulcus Callosum Recti (Hochenegg)

FELIX MANDL, M.D., F.I.C.S.*
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WHEN Hochenegg,[1] in a publication which appeared in 1926, described a case of nonspecific rectal ulcer, he emphasized the difficulty of its clinical distinction from carcinoma. In 1897 the patient, aged 58, had undergone a colostomy for a high, firm rectal tumor, then diagnosed as carcinoma. When the patient presented himself thirteen years later, the tumor had disappeared. In 1918 the colostomy was closed and even in 1922 a follow-up examination revealed that the patient, then 83, enjoyed excellent health.

Four cases of a similar nature were described by me in 1922.[2] In the absence of any specific disease (syphilis, gonorrhea, tuberculosis, lymphogranuloma inguinale) and by analogy with the terminology employed in gastric surgery, Hochenegg thought it justified to give them the name *"ulcera callosa recti."*

In the course of time similar cases were reported, although the explanation and interpretation they were given obviously deviated from those of the original observer. Thus Hermann Strauss,[3] when discussing the etiology of rectal stricture of a venereal origin, also mentions "ulcus callosum stenosans recti." He points out that in the vast majority of cases the condition is in some way connected with lymphogranuloma inguinale and that among 72[1] patients, 69 had a positive Frei test. No doubt the patients he is referring to in his article present the ulcerative type of lymphogranuloma inguinale, so that a differential-diagnostic distinction from carcinoma need not be taken into account. They are, therefore, something quite different from the cases reported by Hochenegg.

Another affection of a similar nature was referred to by Todd[4] in his Hunterian Lecture, "Rectal Ulceration after Irradiation of Carcinoma of the Cervix Uteri, *i.e.*, Pseudocarcinoma Recti." Here the author describes ulceration of the rectum following irradiation treatment of uterine cancer and, on digital examination, the lesion appears so similar to carcinoma that it has been called "pseudocarcinoma of the rectum." There are two distinct types, the one restricted to the rectal wall while the other appears mainly to involve the perirectal tissue with secondary involvement of the rectum. Diagnosis is governed by clinical features and the history of previous irradiation of the vagina. Obviously, however, this lesion has nothing in common with the type of *ulcus callosum recti* referred to by Hochenegg, particularly as there exists no doubt as to its etiology.

Louis Buie[10] described a lesion which he called "factitial proctitis" or "factitial ulcer," usually arising on the anterior rectal wall and allegedly occurring in 3 per cent of all patients who have received x-ray therapy on account of extra-rectal conditions (carcinoma of the uterine cervix, carcinoma of the ovary, epithelioma of the bladder, etc.). According to that author, the lesion may be mistaken for rectal carcinoma although the characteristic proctoscopic picture of inflammation and telangiectasis—apart from x-ray therapy reported in the history—should help to avoid these mistakes.

These ulcers, pro [illegible]

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lying disease on account of which x-ray therapy has been instituted is successfully influenced, as a rule heal spontaneously.

In this connection, mention should be made of the so-called "simple" ulcers of the colon and rectum which were described by Cruveilhier[5] as early as 1830. Quenu and Duval,[6] Barron,[7] Wire,[8] Barlow *et al*[9] also described them. The most prominent feature of this lesion is perforation, and in no case was it possible to establish the diagnosis prior to operation. There is, according to the literature, no question that the lesion might possibly be mistaken for carcinoma.

Only amebic dysentery may occasionally be accompanied by ulcers which may be confused with cancer and should, therefore, be included in the present consideration.[10]

After Hochenegg's publication in 1928, reference to cases of definite *ulcus callosum recti* is to be found in the literature only twice. Kreuter[11] operated on a patient, aged 59, for an indurated ulcer of the rectum which he suspected to be a carcinomatous growth and which was located 4 cm. above the anus. Microscopic examination of biopsy specimens taken by rectoscopy was repeatedly negative. Kreuter resected the ulcer, sparing the sphincter ani, according to the method devised by Hochenegg, and the patient recovered. The pathologic specimen presented no evidence of malignancy. There was nothing but unspecific granulation tissue and ulceration without atypical epithelial proliferation. The lymph nodes showed chronic, inflammatory infiltration.

Henrich,[12] under the heading "A Contribution to Ulcus Callosum Recti," describes the case of a woman of 69 who presented a large, firm, rugged tumor of the rectum, 6 cm. above the ampulla, which was only slightly movable. When the abdominal cavity was opened the pelvis appeared already plastered with tumor masses. Colostomy was done and the patient made a surprisingly speedy recovery. Ten weeks later follow-up examination, rectally as well as proctoscopically, revealed that the tumor had completely disappeared. Microscopic examination of biopsy specimens was not made.

Apart from the experience I gathered at my former place of activity (to which I will refer later) I saw during the last four years two cases which are to be included in this group and which are presented herein.

CASE REPORTS

Case 1. Mrs. R. W., aged 23; admitted to the hospital on June 26, 1940. For several weeks she had been complaining of severe anal pain occurring in paroxysms. Bowel movement normal; no hemorrhage. She was in a fair general condition. Urine, feces, blood: normal.

Rectal examination: At a height of about 7 cm. above the anus a circular, firm tumor with raised edges was felt, stenosing the rectal lumen so that the tip of a finger could barely be introduced. The upper border of the tumor could not be reached, but the tumor could not be moved mechanically.

Rectoscopy: With the rectoscope it was possible to touch the lower extremity of the tumor, and here a specimen for biopsy was taken. Microscopically, there was chronic inflammation, and in some of the glandular tuvules epithelial hyperplasia. The question as to whether or not we were dealing with a neoplasm could not be decided.

Colostomy, July 1, 1940: During the operation we found a very firm intestinal tumor in the cul-de-sac of Douglas almost entirely blocking the rectal lumen. No lymph nodes. Liver normal. Under the assumption that the tumor was a carcinoma recti, colostomy (transverse colon) was performed.

Rectoscopy, July 14 and 21: No change.

Biopsy, July 21, showed chronic inflammation with necrosis of the mucous membrane and absence of epithelium. No evidence of malignancy.

Rectal examination, August 14: Tumor considerably reduced in size. Radial operation which had been decided upon was, therefore, postponed.

Irrigoscopy, Aug. 14, from the lower arm of the colostomy showed no narrowing of the intestinal lumen.

Patient discharged, August 27. When we saw her again in September the tumor had entirely disappeared and no trace of it could be detected either on digital examination or rectoscopically.

October 14, 1940: Colostomy closed.

In 1942 the patient was found to be perfectly well, rectal finding negative.

Case 2. Z. K., aged 29; admitted to the hospital for the first time on May 11, 1942. She reported several cases of tuberculosis in her family. She herself complained of pain in the lower left abdomen. After bowel movements the pain used to subside. Temperature up to 38.5°.

Blood cell count, urine, EKG, Widal, Weil-Felix, paratyphoid, Bang cutaneous test, x-rays of the lungs, gynecological examination, feces were all normal.

She was discharged on May 20, without diagnosis. She then began to run a subfebrile temperature; some months later diarrhoea set in, occasionally occurring five or six times a day with admixture of blood and mucus.

Second admission September 18, 1942. Blood cell count normal; urine normal; feces, free and *entameba hystolytica* positive; Mantoux 1:500,000++; Widal negative; Bang cutaneous test negative; rectoscopy (up to 25 cm.) normal; irrigoscopy normal; formol test negative; puncture of the spleen negative; lungs normal; EKG normal; blood, cerebrospinal fluid normal; Wassermann negative.

On account of the amebiasis which had been discovered the patient was given emetin-yatren and dismissed in an improved condition.

Third admission on December 20, 1942. For a few weeks the patient had done well, then diarrhoea set in again, this time accompanied by marked bleeding. She had lost considerable weight. Blood cell count: anemia of 2,800,000 red blood corpuscles; hemoglobin, 70 per cent; white cell count normal. The blood was improved by three blood transfusions. Between December and February various examinations and tests were made: Mantoux, Dec. 24, 1:500,000+++; January 7, 1:100,000++; January 27, 1:100,000+; February 9, 1:100,000+..

Blood sedimentation rate: December 21, 1 hr., 47 min.; January 3, 4 hr. 10 min.; January 17, 7 hr.; February 2, 5 hr. 20 min.; *February 23, 2 hr. 14 min.*

Urea, glucose, total protein, bilirubin, diastase, Takata-Ara, cephaline tests all normal. Weltmann VI. Sputum: tubercle bacilli (antiformin) negative; feces: tubercle bacilli negative; *entameba histolytica* positive. X-ray of the lungs normal; irrigoscopy negative.

From January 6 to 17 the patient was given a course of emetin and sulfaguanidine therapy, but with no effect on temperature, *pain and diarrhea. She continued to lose* weight. On February 11, 1943, the patient was transferred to the surgical department.

Digital examination revealed at a height of 5 cm. above the anus several firm, polypous nodules, protruding into the intestinal lumen and giving the impression of a movable circular, nodular malignant tumor.

Rectoscopy: The rectoscope could be passed, but revealed no changes either above or below.

Biopsy (February 11): Some patches of necrosis of the mucous membrane and submucous tissue. Many leukocytes. Diagnosis: inflammation, no evidence of tumor.

On February 21, microscopic examination of another biopsy specimen revealed the same findings as on February 11. *No amebiasis (Prof. Adler) even on repeated examination.*

Rectoscopy, March 4, showed the tumor somewhat reduced in size and in its center evidence of softening and suppuration.

Therapy (March 9 to 23): Yatren-rivanol irrigation, following which (March 19) the tumor appeared to have grown again, was more indurated and occupied a larger area than before (about 5 cm. in length). It was movable and the finger could easily be introduced into the lumen. The upper and lower edges were indurated and the finger could be introduced into the lumen.

Microscopically, the surface of the specimen was found to be covered by mucous membrane with partly fibrous muscular tissue in the center. Beneath the epithelium the vessels were replete and there were some hemorrhages. No evidence of malignancy.[*]

March 24: Colostomy in the sigma.

April 11: Tumor unchanged.

April 25: The edges of the tumor were softer, the tumor reduced in size, with a slight depression in the center of the portion adjoining the vaginal wall. In general, one got the impression of retrograde development.

April 28: The patient was discharged.

May 15: The tumor had entirely disappeared. Rectoscopy: normal findings. She had gained 8 kg.

July, 1943: The colostomy had been closed and the patient felt well.

The practical significance of the findings given in the foregoing is obvious. The problem is, however, how to establish the diagnosis. The age of the patient (ours were comparatively young) will be of no great help in view of the frequent incidence of carcinoma, especially of the rectum, in juvenile persons.[13]

Digital findings differ in no way from those obtained in carcinoma and the same holds true for rectoscopic examination. The only means of distinction from carcinoma as well as from other noncarcinomatous lesions of the rectum referred to above are the microscopic findings in the biopsy specimen. However, even here mistakes are possible, as is shown by an abstract of my publication dealing with *1000* sacral operations of rectal carcinoma which is given below:[14]

1. In five cases, radical operation for rectal carcinoma was performed, although microscopically the lesion was definitely benign.

2. Four patients presenting tumors which were considered carcinomas were given colostomy, the tumors disappeared and the patients remained healthy (*cf.* above).

3. In two cases, although biopsy findings were negative, radical operation was decided upon and microscopic examination of the operative specimen revealed carcinoma.

4. Although on biopsy histologic findings were positive, two patients refused to give their consent to operation and remained healthy.

From the above, the following conclusions may be drawn: Where the evidence is doubtful, biopsy should be resorted to more frequently. It should be performed under adequate anesthesia and in full realization of the importance of this procedure as a major surgical manipulation. That on positive microscopic findings, radical operation should follow immediately is rather obvious. The decision will be made more difficult by positive findings on digital examination, while microscopic inspection fails to reveal any evidence of malignancy. Everything depends here on the authority of the histologic examiner and the technical adequacy of biopsy.

The etiology of the lesions referred to in the foregoing is as yet imperfectly understood. In this country, a possible connection with amebiasis, in spite of negative bacterial findings, should be taken into consideration.

Therapy: As it is now generally accepted that *ulcus callosum recti* is *not* to be considered a pre-carcinomatous formation, radical operation is unnecessary. According to our experience, colostomy should suffice to allow healing of the ulcer, which may, however, take several months. Colostomy should be chosen so as to facilitate later closure.

SUMMARY

Account is given of two recently treated cases of *ulcus callosum recti* and differential diagnostic distinction from other lesions is discussed. In both cases colostomy sufficed to effect cure and after a few months the colostomy could be closed The importance of this lesion and its distinction from carcinoma are pointed out.

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[*] I am indebted to Prof. Franco and Dr. Unger for microscopic examinations.

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SUMARIO

Se da cuenta de y se discuten dos casos recientemente tratados de ulcus-calosos-recti y el diagnóstico diferencial distinguiendo otras lesiones.

En ambos casos la colostomía fué suficiente para efectuar la cura y después de unos pocos meses la colostomía puede ser cerrada.

La importancia de esta lesión y su distinción del cancer, es indicada.

RÉSUMÉ

L'auteur rapporte deux cas de ulcus callosum recti récemment soignés. Il discute le diagnostic différentiel de cette lésión. Dans les deux cas la colostomie effectua une guérison. Après plusieurs mois, la colostomie fut fermée. L'importance de cette lesión et sa différentiation du carcinome sont discutées.

Выводы

Дан отчет двух недавных случаев твердой язвы прямой кишки (ulcus collosum recti) и отличие этой язвы от других поражений. В обоих случаях колостомия произвела полное выздоровление, и через несколько месяцев колостомию можно было закрыть. Статья подчеркивает важность этого поражения и его отличие от рака.

SERGEI YUDIN

(Continued from page 446)

Dr. Gordon Gordon-Taylor in the *British Medical Journal* for November, 1943, Dr. Yudin's surgical activities embraced many fields. Since he has been head of the Surgical Service of Sklifasovski Hospital, 5500 foreign bodies have been removed from the esophagi and bronchi, with a mortality of slightly more than 1 per cent; Dr. Yudin has performed 89 esophagoplasties for stricture of the gullet; he and his assistants have performed 5500 operations on the stomach and 100 total gastrectomies for cancer, with a mortality of only 30 per cent; he has performed 3 amputations of the hind quarters for sarcoma of the hip or femur, and a number of plastic operations for congenital absence or atresia of vagina.

Yudin has written a number of surgical works, among them "A Guest of American Surgeons," a sequence of his visit to the United States in 1926, "Transfusion of Cadaver Blood to Man," "Military Field Surgery," "Treatment of War Wounds with Sulfonamides," and "Treatment of Complex Fractures of the Extremities."

His activities were restricted by illness in 1942, but he returned to active duty during the bombardment of Moscow as a lieutenant colonel in the medical corps.

Dr. Yudin holds the Order of the Red Star and the Order of Stalin. In 1943 honorary fellowships were conferred on Dr. Yudin by the Royal College of Surgeons of England and the American College of Surgeons. This distinguished Russian colleague is an [illegible] Fellow of the Internat[illegible] Surgeons.

Intra-Abdominal Calcareous Tumors

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FINDING of calcareous tumors within the abdominal cavity no doubt is a rare occurrence. The lack of bibliographic data itself is a proof. Except for the lymphatic gland calcifications, those occurring within the fibromyoma and cases of lithopedion, there are no others mentioned; even when dealing with calcified glands, which are not so very rare. We often find them at an autopsy rather than by clinical diagnosis. These circumstances have induced me to prepare this paper.

CASE REPORTS

Case 1. On the tenth of June, 1942, I admitted to my ward in the General Hospital a female patient, 39 years of age, complaining of amenorrhea, digestive disturbances and constipation. Menstruation had started at 18 and continued with periods of amenorrhea, sometimes as long as thirteen months. She had one labor, six years after marriage. The present amenorrhea started three years ago.

Examination shows a pale and emaciated patient. By manual examination it was shown that there was a hard tumor, of stony consistency, smooth surface, round in shape, corresponding to the uterus. Palpation was painless and the mass in question was movable. Both cul-de-sacs showed nothing of importance. The routine examinations of urine, blood, etc., showed nothing worth mentioning. On the other hand, the roentgenographic picture was very interesting, as can be seen in Fig. 1, which shows a rounded central mass, of an opacity comparable to that of the bones, studded with small papillary eminences, which occupied the center of the pelvis minor and did not seem to reach the floor of the pelvis, having instead a convex, clean-cut border below.

What could it be? Undoubtedly we had here a tumor of stony consistency, the opacity of which showed its calcareous nature. Palpation allowed us to locate this tumor in the uterus in spite of the fact that the roentgenographic picture showed a lower terminal border, and it looked more as if there were a pedicle above, uniting it to the sacrum. But it was only in appearance. Now then, a uterine calcareous mass could not be anything but a calcified fibroma or a lithopedion adherent to the uterus; however, comparing the findings with the patient's complaint, there was no logical explanation. Two facts dominated the clinical history: the digestive disturbance and the amenorrhea. The first might perhaps be related to the presence of the tumorlike mass adherent to the epiploon (greater omentum), but the amenorrhea tallied less properly with the hypothesis of a uterine fibroma. Supposing the latter to be a subserous growth, the absence of a menorrhagia might be explained, but why amenorrhea? Regarding the other, the lithopedion, I must confess that upon trying to discuss its possibility, a picture came to my mind that I had seen in an illustrated roentgenography, in a paper by Emmert,[3] entitled "The Life History of a Lithopedion." As can be seen, the likeness of that picture of a case of lithopedion to that of Fig. 1 is so remarkable that if it were not for the presence of a shadow of a long bone in Emmert's picture, it could be said they were the same. But, except for this, the subjective signs did not correspond. The patient suffered from several periods of amenorrhea, the last of which could be traced back three years, and never complained of any symptom that might lead to the suspicion of pregnancy of that stage corresponding to the size of a tumor as large as a fist which we found. The adynamia and emaciation added to the digestive disturbances gave an inkling of its true nature, but nothing more.

On June 24, we proceeded to operate. After opening the peritoneal cavity, we found the epiploon adherent to the tumor and the bladder; when these adhesions were broken up, we found a solid mass wrapped up in a true capsule that also enclosed the uterus. By dissection we isolated the tumor mass which had the stony consistency of its calcareous nature. It was a thick shell covering the uterus like a helmet. The underlying organ appeared small and elongated, the ovaries looked like matted or rolled up cord, of a grayish color.

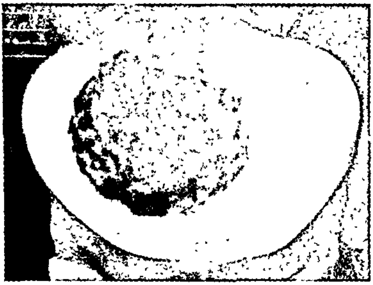

Fig. 1. Intra-abdominal calcareous tumor, made up of calcified helmet of omentum wrapping uterus.

The histo-pathologic report read "calcareous deposit which when dissolved leaves fibres of connective tissue pressed tightly together." The patient was discharged on the 31st of July, free from digestive disturbances and able to eat food normally.

What was the exact diagnosis? The question propounded at the beginning remained without a satisfactory answer. It was not a calcified fibroma; it was not a lithopedion. A suspicion that we were dealing with a tubercular process had already come to our minds. There was nothing to corroborate it. It was the finding in another case, a peri-uterine tumor, in a less advanced stage, which led us to suspect its genesis.

Case 2. A female, aged 20, was admitted to the General Hospital for an intestinal disturbance which almost led to an emergency operation. She was a native who had never been pregnant but who at the time believed herself pregnant because she had not menstruated for more than two months. Examination showed a tumor clearly in the uterus which reached up to two fingers breadth from the umbilicus. Its median location, ovoid shape, absence of tenderness, seemed certainly to indicate pregnancy, but the size did not correspond to the indicated stage (two and a half months of amenorrhea).

There was no softening of the cervix, no pigmentation or other signs of pregnancy. Could it be a subserous myoma? We resorted to the hysterosalpingography shown in Fig. 2. The shadow of the uterine cavity appeared normally triangular and the Fallopian tubes were patent, therefore the tumor must be parietal.

At the operating table, we found the peritoneum thickened and adherent. The uterine tumor was made up of thick layers of epiploon covering the uterus. The other organs of the pelvis minor were also covered, though not so thickly. A seropurulent collection escaped from some corner. The peri-uterine tumor proved definitely that what we had there was a tubercular peritonitis. Three months later the patient felt well. but the amenorrhea continued.

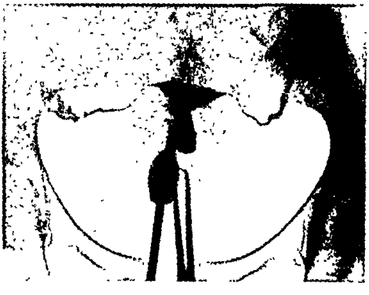

Fig. 2. Uterine tumor in a patient suffering from amenorrhea, reaching up to the umbilical line and showing on x-ray study a normal triangular uterine cavity and patency of the Fallopian tubes. The operation established the presence of a tumor made up of thickened epiploon layers wrapping the uterus and the presence of tuberculous peritonitis.

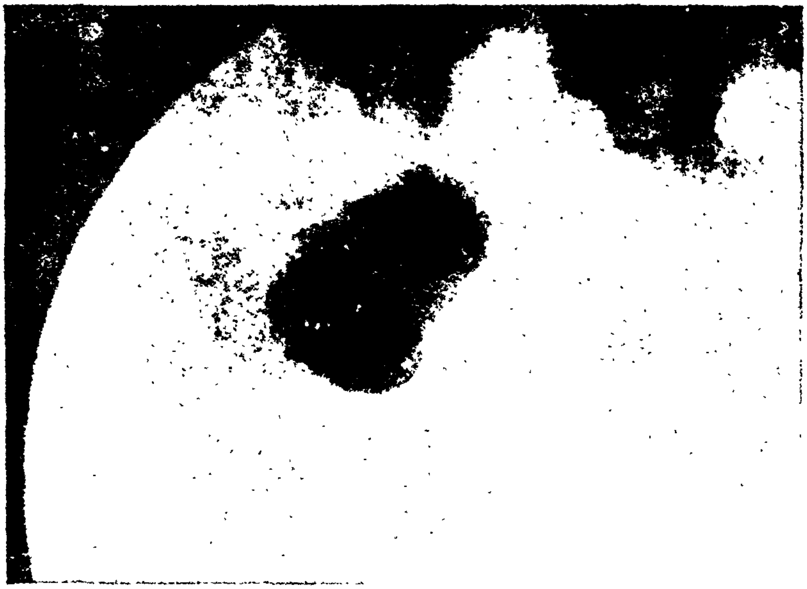

Fig. 3. Calcareous body which seemed like a biliary calculus.

The analysis of these two cases could not but induce the presumption that we ad come upon two different stages in evolution of the disease, and that ese two clinical pictures corresponded to one and the same process, tubercular peritonitis.

Truly, the strange calcareous helmet found covering the uterus in the first case had a remarkable similarity to the thickened epiploid layers wrapping that organ in the same manner in the second case. This peritoneal capsule or shell, undergoing the common process of caseation and calcification, would no doubt end by forming the calcareous helmet found in the first. In both, the omentum was adherent to the peri-uterine tumor found formed at its own expense, but while in the latter the adhesions were firm and it was clearly to be seen that they were peritoneal attachments, in the first case, that of the calcified helmet, they were feeble tracks easily separated with a piece of gauze. It is easy to imagine that the increase in weight of the calcareous mass had a constant pulling effect which, added to the closing up of the circulatory channels, already useless, would end by detaching it from the omentum and making it an independent entity. Calcareous tumors due to calcified glands are less rare, but not easily diagnosed, as in the following example.

Case 3. Mrs. M. N., aged 56, had complained of considerable edema of the right lower limb which compelled her to remain in bed, since standing or walking made it considerably worse. Under these circumstances she had a sudden hematuria, which gradually disappeared in a couple of days and which led to several diagnoses, almost all of them pointing out her heart as the cause of the edema. When the hematuria occurred, those who attended her suspected a carcinoma of the kidney. The examination of the patient was very difficult on account of her excessive obesity. It was to be noted that the predilection of the edema for one of the limbs indicated some local obstacle and that the hematuria was not accompanied by any other urinary symptoms. The x-ray examination carried out in order to visualize the bladder and ureters revealed the existence of calcified glandular masses which deformed the outline of the filled bladder and were located on the same side of the edematous limb, causing an obstacle to lymphatic circulation.

Case 4. Another case is that of a Syrian, aged 55, suffering from pain in the left loin, alternating constipation, fetid diarrhea, melena, and roentgenologic signs of stenosis of the descending colon, all of which made us think of cancer. One day he expelled a calculus of cholesterin as large as a dove's egg, which allowed us to make a definite diagnosis. The biliary calculus, located at that point of the colon, had caused an erosion of the mucous lining and the symptoms of partial obstruction.

Everything seemed clear except that the x-ray pictures showed, besides, the shadow of a round body in the region of the gall bladder and this shadow persisted after the expulsion of the calculus. Were there in reality two stones, one of cholesterin, expelled, and the other calcareous, remaining? The examination did not reveal anything in the gall bladder region, neither did the subjective data. We made a cholecystographic study in series (See Figs. 3 and 4) which brought out revealing information: the body in question was not located within the gall bladder. By its shape and size and the lack of history and symptoms, we were not justified in supposing that it was a renal calculus. It was clearly inadmissable to assume that it lay within the lumen of the intestine, since such a voluminous body retained within the small intestine could not but cause serious disturbances. Consequently its location must be extra-visceral and by its opacity, shape, size and location in the peritoneal cavity, we were justified in surmising that it was a calcified mesenteric gland.

The finding of calcified glands in the abdominal cavity during autopsies is not rare but is rather frequent compared to the occurrence of calcified glands in other parts of the body. If, in accordance with the theory of Klotz (quoted by Colt and Clark[2]), we admit that the fats or caseous matter leads to the formation of calcic soaps which later on are replaced by phosphates and carbonates of lime, the above-noted frequency could be explained by the fact that the mesenteric glands receive a larger proportion of fats than those of other regions of the body, since they are nearer to the source, that is, intestinal absorption. Whatever may be the truth, the undeniable fact is that glandular calcification occurs with greater frequency in the abdominal cavity. Now, therefore, the tumors under discussion may have been formed by thickened epiploic layers which underwent caseation and were subjected to that process until they reached the stage of calcification, forming the calcareous objects which we have described.

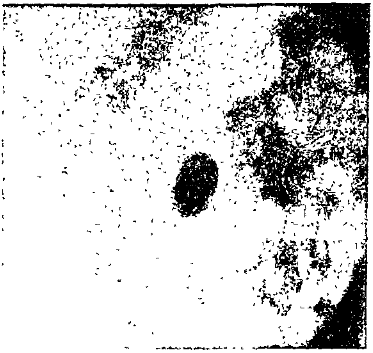

Fig. 4. The patient x-rayed at an angle to show the extra-vesicular location of the mass; this which established the diagnosis of calcified gland.

CONCLUSIONS*

It is claimed that in the process of peritoneal tuberculosis the thickened epiploon (omentum) may be found in wrapping layers upon such organs as the uterus, and that following the general course of events, this covering may reach caseation and later on calcification, giving rise to stony tumors.

The existence of intra-abdominal calcareous masses such as those herein referred to, as well as calcified glands, may give rise to confusion in diagnosis, which can be avoided by taking into account the possibility of their existence.

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*It is gratifying to me to express the roentgenologist, Dr. Theodore devoted coöperation in these value and help.

In corroboration of the foregoing, clinical cases are described.

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SUMARIO

Se pretende que, en el curso de la tuberculosis peritoneal, el espesor del epiploon (omento) podrá encontrarse en lechos o capas que envuelven tales órganos como el útero y que en debido tiempo estos tejidos pueden llegar a caseación y más tarde a calcificación, dando origen a tumores duros (calculosos) como piedras.

La presencia de masas calcáreas dentro del abdomen como las aquí mencionadas, como también las glándulas calcificadas, dan origen a confusión diagnóstica; que puede evitarse si se toma en cuenta la posibilidad de su existencia.

Para confirmar lo que se deja dicho cuatro casos clínicos son citados.

RÉSUMÉ

L'auteur prétend que dans les cas de tuberculose péritonéale l'épiploon peut être enveloppé autour de certains organes tels que l'utérus, etc. Avec le temps l'épiploon devient le siège de caséation et eventuellement de calcification donnant naissance à des tumeurs pierreuses. Ces masses calcaires peuvent induire en erreurs diagnostiques: glandes calcifiées, etc. L'auteur rapporte quatre cas en rapport avec sa thèse.

Выводы

Константировано, что при брюшном туберкулезе, брюшина иногда заворачивается в несколько слоев вокруг таких органов, как матка, и, что в течении времени туберкулезное перерождение и кальцификация могут образовать каменныя опухоли.

Если возможность существования этих масс, а также кальцифицированных брюшных желез, не принята во внимание, то постановка диагноза может быть очень осложнена. Для иллюстрации представлены клинические случаи.

Muscle Reinnervation* **

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RECOVERY of muscle power following nerve resuture or poliomyelitis proceeds for only a limited time to be followed by a constant degree of paresis.[1, 2, 3]

In embryologic development, muscle contractile tissue has differentiated from mesoderm prior to the outgrowth of innervating motor nerve from the invaginated ectodermic nerve tissue.[4]

Motor nerve axons arborize by division in the muscle to muscle fibers.[5] It is estimated that in the extraocular eye muscles a single axon may innervate but ten or so muscle fibers as compared with one hundred in the skeletal muscles. The knowledge of factors concerning regrowth of axons is constantly being enhanced.[6] It is now possible to draw conclusions from muscle action potential determinations. The anterior horn motor nerve cell with its axon, arborization and muscle fibers innervated is termed a motor unit.

Striated muscle fibers with their many nuclei atrophy when they lose their nerve supply but are capable of restoration if reinnervated.[7]

Experimental evidence in lower animals has shown that motor axons are capable of branching and arborizing to innervate a much larger mass of muscle fibers then normal.[8] Repeatedly experiments have shown that there is an increased branching of axons in regrowth after interruption.[9, 10, 11]

A study of factors involved in *motor nerve axon regrowth and arborization* with determination of resultant muscle fiber reinnervation is being made.[12] In rabbits the fifth, sixth and seventh lumbar spinal roots supply the motor axons for the femoral nerve to the femoral muscles producing extension at the knee. A symmetrical marked paresis of the femoral muscles can be produced by avulsing the sixth and seventh roots from the spinal cord and resecting them. In such prepared animals the femoral nerve motor branches on one side have been *crushed near the muscle at one place* by a small hemostat sufficiently to interrupt the remaining live axons but not to interrupt the sheath. The regrowth of axons to the muscle with arborization to muscle fibers has been tested *at various postoperative intervals in different animals* by means of isometric measurement of muscle force, muscle action potentials and histologic sections. An average increase in power of several times over that recorded on the control side has been obtained.

Using chiefly post-poliomyelitic *paretic muscles with residual constant muscle power*, reinnervation has been attempted in several thousand muscles in the human.

Two methods of producing axon interruption "neurotripsy" have been developed. General, spinal or intravenous anesthesia is used. Particular care is necessary in the administration of anesthesia to patients in whom there has been impairment of the respiratory center such as high poliomyelitis.

In the open surgical method the motor

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nerve branches are bluntly traced as far as possible into the muscle and there compressed with a small hemostat just sufficiently to interrupt the enclosed axons, without disrupting the sheath.

In the closed surgical method a blunt instrument is kneaded through the muscle vigorously, deeply and repeatedly throughout its entire area. Attempt is made to spread the muscle apart in as many places as possible. This produces avulsion interruption of the maximum possible number of axon branches so as to provide the *greatest opportunity* for *increased branching* to muscle fibers *in regrowth*.

Large arteries and nerves are avoided. The number of muscles treated at any one time depends upon the general condition of the patient. A thorough procedure is one in which no area of the muscle has been missed and the part feels pulpy in consistency.

Both electric and compressed air eccentric driven instruments have been developed to replace the earlier hand type. In no instance has delayed shock followed the muscle trauma, careful tests for this having been carried out.

The patient leaves the hospital one or two days postoperatively and is urged to be *up and about as preoperatively*, using braces if necessary. There have been no serious complications, however, tenderness, ecchymosis and induration usually follow the closed procedure. These subside with the use of contrast baths, massage and passive motion. Residual interstitial fibrosis does not develop. In instances where palpable "knots" persist in the muscles past the first month, deep kneading effects their rapid disappearance. These complicating signs and symptoms following the closed surgical procedure have been of negligible degree since the institution of use of the power-driven instruments.

Preoperative repeated analysis of muscle power serves to establish the constancy of the degree of paresis. Postoperative frequent analysis of power serves to ascertain progress. Such analysis of muscle power includes the use of galvanic and faradic electrical currents, muscle action potentials, clinical trial ability tests, Lovett system of muscle grading modified to represent the power range in seven grades, actual power of muscle spring scale measurements.

Results as determined by the above methods of analysis are as follows:

1. On the average there is in the muscle a definite increase in power sufficient to be of practical value. Following the open surgical method a mean increase in power was obtained of sufficient amount to warrant the procedure in muscles up to the preoperative grade of poor. Muscles of grade higher than poor showed a mean increase in power insufficient to justify the procedure. For example, in one series of 251 selected arm muscles the lower graded muscles showed a mean increase of +1.31 grades. In the higher preoperative grades the mean increase is less the higher the grade, so that in muscles higher graded than poor there begin to be occasional losses of power. Thus in the "fair" graded muscles a mean loss of .26 grades resulted. This curve is observed in all series operated on by the open surgical method.

In the closed surgical method a mean increase in power was obtained in one series of 702 arm muscles of .65 grades. By this method the possibility of losses of power is avoided. Higher graded muscles do not respond as well with increases in power as do the lower graded ones.

2. Control muscles do not improve in power even though in the same extremity and subjected to the same period of physical therapy. For example, 310 leg muscles showed a change of only .06 grade and 270 arm muscles a change of

.004 grade. Therefore the physical therapeutic effect on residual paretic muscles is nil.

3. Muscle action potentials show changes to coincide with the increases in power as determined by other methods.

4. In those operated on by the open surgical method, improvement in muscle power is greatest when the nerve interruption is performed closest to the muscle fibers. In those operated on by the closed surgical method improvement is greatest where muscles overlay bone and a better spreading apart of the muscle can be obtained.

5. The immediate postoperative effect of the open surgical method is total loss of power. The closed method does not cause this immediate loss.

6. The mean improvement at various postoperative time intervals in one series of selected muscles is:

	Manual	*Surgical*
1 month	+.63	−.11
3 months	+1.06	+.75
6 months	+1.23	+1.20
9-12 months	+1.31	+1.54

7. Age of the patient up to 40 years has no influence on the result. Above that age the increases in muscle power are 20 per cent less.

8. Duration of the paretic state has no effect on the increase in power.

9. Cranial nerve supplied muscles show increases in power similar to that obtained in skeletal muscles. Satisfactory increase in power of the facial muscles was obtained in a case where the seventh nerve had been lost and replaced by a transplant graft of the eleventh.

10. Repeating the procedure by open surgical method following an initial open surgical procedure has not been tried. Repeating the procedure by closed surgical method *following initial open surgical or closed surgical application* results in improvement in power but very little improvement in muscle grade.

11. As muscle power increases there is also an increase in size of the muscle, and the atrophy correspondingly disappears.

12. Considerable circulatory improvement is usually noted in the extremity operated on.

Observations pertinent to these studies include:

1. Testing of power and extent of motion must be accomplished by separate methods. Power may increase over a restricted arc of the possible passive extent of motion without increasing the extent of that arc. Hence the various systems of clinical muscle grading based on extent of motion are not satisfactory as a test of power. For example, the overall, bilateral increase in power of the quadriceps, gluteus maximus, plantar flexors of the foot and dorsiflexors of the foot measured by spring scale for the year following the open surgical procedure was from 22 pounds to 93 pounds, a matter of 323 per cent. The measurement by muscle grade however reveals no change except for one gluteus maximus from T to T+ inasmuch as muscle grading is based chiefly on extent of motion. During the year *following a repeat by closed surgical method* on these same muscles, increases in power were as follows:

	Right	*Left*
Quadriceps	24%	50%
Gluteus maximus	30%	19%
Plantar flexors of foot	103%	59%
Dorsi flexors of foot	118%	96%

Again the measurement by muscle grading reveals no change except for one Gluteus Maximus from T+ to P− and one Quadriceps from P− to P.

2. The shortening extent of a muscle is among other things a product of the number of motor units present.

3. Very seldom does a given muscle produce by itself a particular joint motion. These are produced by a combination of motor units having little relation to a particular muscle. Thus the motor units are the basis for the kinetic function of muscles. For example:

a. The motor units in the posterior deltoid muscle must cease function when those in the anterior deltoid start function as the outstretched arm is swung forward.

b. Improvement in nonop. med. hamstrings when femoral group, glutei and gastrocnemius not done. . ±.00
Improvement in nonop. med. hamstrings when femoral group, glutei and gastrocnemius are done. . +.77
Improvement in nonop. lat. hamstrings when femoral group, glutei and gastrocnemius not done. . ±.00
Improvement in nonop. lat. hamstrings when femoral group, glutei and gastrocnemius are done. . +.5

Thus by muscle grade an obviously false picture is presented and the increases in power are incorrectly designated.

4. Anatomic variations in the attachments of tendons must be considered. In the fingers the *extensor longus digitorum tendons* frequently attach to the middle phalanx and occasionally to the distal phalanx. In determination of the share of power of extension of the phalanges at the several joints *attributed to the lumbricales and long extensors* this factor is important. In a large percentage of individuals the *extensor longus hallucis tendon* attaches to the proximal phalanx. In an analysis of toe function in expert professional toe dancing, it is noted that only those individuals in whom this extensor attaches to the distal phalanx are able to perform adequately without box shoes.

5. The interrelation of function of the various muscles considering the extremity and body as a whole must be carefully kept in mind.[13] Frequently an increase in power in one muscle may be otherwise improperly credited to another. For instance, the flexor muscles in the forearm having a flexing effect at the elbow because of their attachments past the elbow to the humerus *have an interrelated function* with the triceps which passes both the elbow and shoulder joints and the biceps and other flexor muscles of the elbow some of which also pass the shoulder joint.

6. Residual contracture of the fascial ligamentous structures producing *restriction of motion* and *peripheral nerve compression type irritation* interfering with proper nerve muscle function must be corrected by adequate fascial ligamentous stretching.

7. Muscle training should follow a particular sequential pattern of education through active function in the use of the new balance of power. This necessary sequential pattern is best observed in the stages of *development of the use of the muscle through use* in the growing infant.[14] Thus in reëducation for *coördinate use of a new balance of power* made necessary by the onset of paresis in a portion of the muscles, the following sequential steps in training are necessary:

(a) The individual separate use of the available motor units to produce power for each particular joint motion with all other motor units inactive.

(b) The coördination of use of such power to produce a specific joint motion with that producing the other motions in the same joint.

(c) Coördination of the use of power to produce the various joint motions in one joint with that available to produce the various joint motions in adjacent joints.

(d) Coördination of the use of (c) extended to the whole body and extremities as in gait training.

8. Training in the coördinated use of muscle power can be materially aided by routine exercising to rhythm. During the early years of growth there may be a lag in development of the ability to properly coördinate the use of the muscles. This results in the clumsy, physically inept adult who, though mentally alert, shies away from sports because he cannot handle himself well enough to acquire the dexterity to enjoy them. If such individuals acquire paretic muscles, the muscle reëducation is unsuccessful unless exercises guided by a metronomic type of rhythm are instituted.

9. In certain individuals with paretic muscles the disability is aggravated by increased tone frequently associated with instability of the autonomic nervous system. As a prerequisite for muscle reëducation in such individuals muscular relaxation must be obtained. This can be accomplished by routine, very slow, passive exercising for a period prior to each muscle training session.

SUMMARY

1. A means of increasing power in paretic muscles is presented.

2. Factors necessary to consider in analysis of nerve muscle function are listed.

3. Methods of muscle reëducation important for coördinated function of a new balance of power are outlined.

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SUMARIO

1. Se presenta un método de aumentar el poder de los músculos parestésicos.

2. Los factores necesarios en el análisis de la función de los músculos de los nervios son enumerados.

3. Los métodos de reeducación de los músculos que tienen importancia para la función coordinada de un nuevo equilibrio de poder son descritos.

RÉSUMÉ

1. On présente un moyen d'augmenter le pouvoir des muscles parétiques.

2. Les facteurs nécessaires à la considération d'une analyse de la fonction des muscles nerveuses se sont données.

3. Les méthodes de la rééducation musculaire aussi importantes pour la function d'une nouvelle balance de pouvoir coördonnée sont préconisées.

Выводы

(1) Даны способы укрепления частично парализованных мышц.

(2) Дан список факторов, которые необходимо принять во внимание при анализе нервно-мышечной функции.

(3) Дана методика [illegible] ция мышц с целью коорди[illegible] системой сил.

The Surgical Significance of the Anatomical Layers of the Gastro-Intestinal Tract[*]

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ALTHOUGH surgeons are daily suturing the gastro-intestinal tract, it is apparent that the surgical significance of its anatomical layers is still grossly misunderstood. Not only in surgical textbooks but also in articles appearing in our leading surgical journals today, descriptive details of surgical technic reveal confusion of this most fundamental knowledge. Consequently it seems important to review the subject and especially to emphasize the rôle of the submucosa. The errors relate to matters not only of the histology, but to the thickness and physical qualities of the submucosa.

The accompanying drawing (Fig. 1) of a cross section of the intestinal wall is based upon Dr. Franklin Payne Mall's accurate determination of the relative thickness of the intestinal layers. Of all the layers of the intestine—serosa, longitudinal muscle, circular muscle, submucosa, muscularis mucosa and the mucosa—it is the submucosa which most concerns the surgeon. No other layer of the intestine can be depended upon to hold a suture. Between the submucosa and the glands of Lieberkühn practically nothing intervenes. Therefore, when the intestinal needle once enters the mucosa, for all practical purposes it enters the lumen of the gut. It is an easy matter to isolate the submucosa. The outer muscular coats strip off readily and the mucous membrane can be easily scraped off with a knife. One may also isolate the submucosa by engaging the intestines firmly between the handles of a pair of scissors then pulling the intestines through the handles. The handles allow only the submucosa to pass between them and strip off the serosa and the muscular layers on one side and the mucosa on the other. The submucosa is not torn by such rough handling, since it is an exceedingly tough, fibrous membrane. It is air-tight and water-tight and is the skin in which sausage meat is stuffed. Catgut is made from the submucosa of the sheep. One may practice picking up shreds of the submucosa with intestinal needles and test the strength of the submucosa. A stitch which includes only the serosa and the muscular layers will pull out as readily as from putty and certainly would not hold an anastomosis, nor closure of an intestinal fistula, nor an invaginated gut-end. A stitch in the mucosa will pull out also. If a bit of submucosa is included with these other layers the stitch will hold. A needle, on being pushed vertically through the wall of the intestine, meets with considerable resistance when it reaches the submucosa. Still greater resistance is encountered if one tries to pass the needle horizontally through the meshes of the submucosa. A delicate thread of the submucosa is very much stronger and better able to hold a stitch than is a coarse shred of the entire thickness of the muscular and serous coats. The force required to enter the submucosa with the blunt rounded end of the needle is sufficient to perforate it with a distinct jerk. To the sharpened end of the intestinal needle sufficient resistance is offered by the submucosa to be easily appreciated. By practice the surgeon will develop a sense of respect for the submucosa and a feeling of security that his sutures will hold, because he knows that he has included sufficient fibers of the submucosa in his stitches.

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[*] Editor's note: The paucity of authors stressing the importance of the anatomical layers of the gastro-intestinal tract in intestinal surgery, particularly of the submucous layer, makes this article very timely, and while to some it may appear elementary, it is the neglect of elementary things which often leads to disastrous consequences.

Dr. Samuel Gross in 1843 was the first to mention the submucosa. But in subsequent years its very existence was overlooked altogether until the studies of Dr. Franklin Payne Mall and Dr. William Stewart Halsted[2] in 1887 clearly showed that it was the submucosa and only the submucosal layer that could be sutured. Dr. Halsted throughout the remainder of his life continued to emphasize this both in his writings and teachings.

The intestinal wall cannot be sutured layer by layer. The serosa (peritoneal coat) will not hold a suture; as will neither the muscular layers nor the mucosa. If one realizes that the wall of the intestine must be magnified to a thickness of 4 to 5 cm. in order to be able even to represent the serosa by a fine pencil stroke, one finds it hard to understand that surgeons should ever have supposed that they were including only the peritoneum (serosa) in their stitches. It is practically impossible to suture the serosa; yet not infrequently in descriptions of operative technic the serosa is described as sutured in a separate layer. The serosa is important to the surgeon because of its ability to seal off the intestinal wound when serosa is approxi-

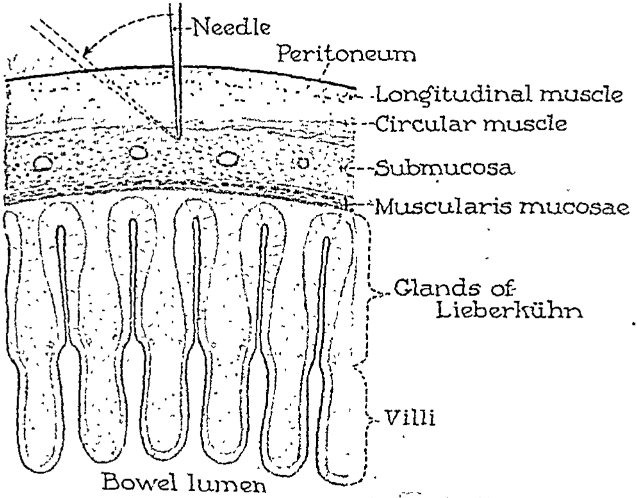

Fig. 1 Cross section of the intestinal wall, showing relative thickness of the int[illegible] layers, serosa, longitudinal muscle, circular muscle, [illegible] a, [illegible] laris [illegible] and mucosa. Intestinal needle penetra[illegible]

mated to serosa. Sutures of the muscular coats tear out. Sutures which penetrate the mucosa are for all intents and purposes exposed to the intestinal lumen contents and are endangered to contamination and spread of infection from the intestinal bacteria to the suture line. In order for a suture of any of the layers of the intestinal wall to hold, the suture must include a bit of the submucosa (fibro-elastic layer). Often writers have made no distinction between the submucosa and the mucosa in detailed descriptions of operative technic. Often only the term mucosa has been used when actually the submucosa was in mind.

The surgeon may readily learn to sense the submucosa with the point of his intestinal needle and will know when his needle is picking up the submucosa, and to include a part of it in the stitch without entering the lumen of the gut. With a little practice one learns not only to pick up a thread of the submucosa but to press the needle along in the plane of this coat. The resistance in the latter case may be as great as that experienced in taking subcuticular stitches. The surgean should practice suturing the submucosa on the intestines of animals and develop his skill thoroughly before attempting to suture human gastro-intestinal structures. This would lessen the surgical tragedies of peritonitis from leakage of suture lines (perforation of gut wall), and the blowing out of closed intestinal stumps (such as closed duodenal stump in gastric resection) due to tearing out of invaginating sutures which were not placed in the proper intestinal layer. It is possible to take stitch after stitch of the submucosa without perforating the submucosa. Just as soon as the submucosa is perforated, the suture lies in the mucosa and consequently is exposed to soiling and fecal contamination from the intestinal lumen. Every surgeon should satisfy himself with this important fact either by practicing on fresh human intestines at the autopsy table or on dog's intestines in the animal laboratory, or on fresh pig's intestines from the slaughter house. The surgeon should train his hand by practice with a straight milliner's needle or a curved round intestinal needle to know the feel of picking up and sewing the intestinal wall so as to pick up just a holding stitch of submucosa without penetrating the mucosa. Let the surgeon anastomose the intestine and then open the gut and scrape off the mucosa and see whether his stitches are exposed. Or he may draw the opened gut between the handles of the scissors and strip both sides clean, leaving only the submucosa with the sutures clinging to a delicate shred of this very tough tissue. According to Edmunds and Ballance[1] in their measurements to determine the relative thickness of the submucosa and the muscular layers in man and the dog, the muscular layer is very much thicker in dogs than man, but the reverse is true in the case of the submucosa. Eventually the surgeon will learn to sew without entering the mucosa, thus improving his operative technic.

The chief danger of infection of the peritoneum is from the passage of the intestinal contents (bacteria) into the peritoneal cavity subsequent to the operation. Penetration of the suture to the intestinal lumen is a contributory factor. The occurrence of ulceration or necrosis of the intestinal wall at the site of the suture permits escape of intestinal contents and affords a soil suitable for the lodgment and growth of bacteria. After necrosis of the serosa and subjacent intestinal coats (even when the necrosis does not extend to the mucous membrane), bacteria (because of suture perforation), which otherwise would prove harmless, may reach the diseased tissue and find suitable conditions (necrosed tissue) for their development. In order to obtain a complete and firm closure of an intestinal opening, formerly it was customary to turn in several rows of sutures of the intestine one over the other, thus turning in a considerable extent of the intestinal wall, the circulation of which was thereby greatly impaired. The extent of the tissue slough of the intestinal wall was increased with consequent greater danger of infection and obstruction to the passage of the feces which accumulated at or above the site of the suture, thus increasing the tension on the sutures and endangering their separation. Surgeons know now that a sufficiently firm closure of the intestinal wound may be made without so much inturn. Although recovery may occur after penetration of the intestinal lumen, the penetration may lead to serious consequences and should be carefully avoided. It is important to appreciate the moment when the needle point comes in contact with the submucosa. By observing this one can guide the needle so as to include a bit of the submucosa without penetrating the mucous coat. Of no less importance in guarding against peritoneal infection is the necessity of including in the final row a bit of the submucosa.

Stitches which do not enter the mucous coat become ultimately subperitoneal loops (long before the turned-in-flange has flattened out). Uninfected, they are cast outwards and do not discharge into the lumen of the intestine. Perforating stitches usually ulcerate into the bowel. One may find perforating stitches hanging in the lumen of the bowel weeks after the anastomosis and even after the inturned flange has nearly disappeared. There is an infected sinus formed by the tract of these stitches until they are released into the lumen of the bowel. These infected perforating stitches show an inflammatory reaction to the bowel wall or even small abscesses about the thread. Some of the penetrating stitches may cut their way outward and after they have pulled through the mucosa the sinus tract may become sealed from within and the suture pass on to the peritoneum in a clean way. The more perfectly the intestine heals, the more stitches come to the peritoneal surface and the fewer omental adhesions form (even no adhesions may form). If we remember that every perforating stitch is a source of danger, however slight, as well as a menace to the circulation, our efforts will be directed toward the suppression of unnecessary stitches and the cultivation of the sense which makes possible the appreciation of the resistance offered by the submucosa to the needle's point.

In the Fredet-Ramstedt operation for pyloric stenosis in infants the tumor is divided down to the submucosa, and not to the mucosa as articles on operative technic so frequently state. Should one divide the wall of the stomach or the duodenum to the mucosa, the gut would be perforated as there would be nothing to hold. The submucosa is a firm fibrous layer that is not easily perforated with a blunt instrument. A sharp instrument or a scalpel will quickly cut through. This is an important point to remember in doing the Fredet-Ramstedt operation. Another pertinent detail is to locate the submucosal layer on the duodenal side as well as the gastric side of the pyloric tumor so as to split the pyloric tumor from both ends and thus be certain safely to divide the last tumor muscle fibers without perforation of the gastro-intestinal tract.

SUMMARY

(1) The submucosa is the most important gastro-intestinal layer in surgical technic.

(2) It is impossible

serosa alone or the intestinal wall in layers, as frequently advised by authors.

(3) Stitches which include nothing but the serosa and muscular coats alone tear out easily and are not to be trusted.

(4) Each stitch should include a bit of submucosa. A thread of submucosa is much stronger than a shred of the entire thickness of the serosa and muscularis.

(5) It is not difficult to familiarize one's self with the resistance furnished by the submucosa to the point of the needle and it is quite easy to include a bit of this coat in each stitch as to suture the serosa and the muscularis alone, and to take up a small bit of the submucosa without entering the lumen of the intestine.

(6) One can suture the submucosa stitch after stitch without perforating the submucosa or entering the mucosa.

(7) If the submucosa is perforated, the intestinal lumen is almost certainly entered.

(8) Sutures which do not perforate the submucosa or penetrate the lumen of the intestine eventually become subperitoneal, while sutures which perforate the bowel usually ulcerate through and are discharged into the lumen of the intestine.

(9) The chief danger of peritoneal infection is from perforating intestinal sutures or leakage from sutures which do not hold, or the blowing out of invaginated stumps, usually because the sutures have not been placed in the proper layer, *i.e.*, they have not included a bit of the submucosa.

10. In the Fredet-Ramstedt operation on infants the pyloric tumor is divided down to the submucosa and not the mucosa.

(11) Surgeons would do well to practice the suture of fresh human intestine at the autopsy table or dog's intestines in the animal laboratory or fresh pig's gut from the slaughter house so as to master the suture of the submucosa before undertaking human abdominal surgery.

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SUMARIO

(1) La submucosa es el tejido o capa gastro-intestinal más importante, en la técnica chirúrgica. (2) Es imposible suturar la serosa solamente o toda la pared intestinal por láminas, como lo recomiendan ciertos autores. (3) Suturas que incluyen solamente la lamina serosa y la muscular se rompen facilmente y no se pueden confiar. (4) Cada sutura deberá incluir algo de la submucosa. Un hilo de la submucosa es más fuerte que una porción de las láminas serosa-muscular. (5) Es nada difícil familiarizarse con la resistencia que ofrece la submucosa a la punta de la aguja y es fácil incluir algo de esta lamina con cada sutura, con más ventaja incluyendo algo de la submucosa sin penetrar el canal intestinal. (6) Se puede cerrar la submucosa de puntada a puntada sin perforarla y sin entrar la mucosa. (7) Si se traspasa la submucosa casi siempre se penetra el canal intestinal. (8) Suturas que no traspasan la submucosa y no penetran el canal intestinal quedan subperitoneal, mientras que suturas que penetran el canal intestinal generalmente se ulceran dentro de la cavidad o canal intestinal. (9) El principal peligro de in-

fección peritoneal procede de suturas que perforan el intestino con filtración y reparacíon debido a la falta de seguridad o por suturas que se separan por que no fueron propiamente inclusivas de la submucosa. (10) En la operación de Fredet-Ramstedt en infantes el tumor pilórico se divide incluyendo la submucosa y no la mucosa. (11) Cirujanos pueden practicar la sutura intestinal durante autopsias o trabajo de laboratorio en los intestinos de perros y demás para adquirir habilidad y dextreza antes de hacer la cirugía abdominal humana.

RÉSUMÉ

1. Dans la technique chirurgicale, la sous-muqueuse est la couche la plus importante.

2. Il n'est pas possible de suturer la séreuse seule ou les différentes couches intestinales séparément ainsi que le recommandent beaucoup d'auteurs.

3. On ne peut pas se fier à des points qui n'interessent que la séreuse et la musculeuse seul. Ces points déchirent facilement la paroi intestinale et se détachent.

4. Chaque point doit inclure un peu de la sous-muqueuse. Les points intéressant la sous-muqueuse sont plus forts que ceux qui intéresse toute l'épaisseur de la séreuse et de la musculeuse.

5. On peut inclure dans le point la sous-muqueuse sans léser la muqueuse.

6. Si la sous-muqueuse est perforée, la lumière intestinale est presque certainement envahie.

7. Les sutures qui ne perforent pas la sous-muqueuse ou qui ne pénétrent pas la lumière de l'intestin deviennent avec le temps sous-péritonéales; celles qui pénétrent la lumière de l'intestin ulcèrent la muqueuse et sont jetées dans l'intestin.

8. Le grand danger
tonéale est les sutures
paroi intestinale ou le relachement de sutures permettant l'échappement du continu intestinal dans la cavité péritonéale.

9. Dans l'opération de Fredet-Ramstedt sur les enfants pour tumeur pylorique, l'incision intèresse la sous-muqueuse et non la muqueuse.

10. Les chirurgiens devraient s'entraîner pour la suture intestinale à la table d'autopsie, sur des chiens ou sur des boyaux de porcs afin de passer maître dans la suture de la sous-muqueuse.

Выводы

(1) В желудочно-кишечной хирургии подслизистая оболочка является самым важным слоем.

(2) Совершенно невозможно сшить только серозную оболочку (peritoneum) или же сшить кишечную стенку слой за слоем, как советуется многими авторами. (3) Швы, включающие только серозную и мышечную оболочку, легко вырываются и являются очень ненадежными. (4) Каждый шов должен включить часть подслизистой оболочки. Одно волокно подслизистой оболочки гораздо крепче чем вся толщина серозной и мышечной оболочек. (5) Очень легко разпознать сопротивление оказываемое подслизистой оболочкой острию иголки. Включить немного этой оболочки в каждом шве так же легко, как и сшить только серозную и мышечную оболочки. Но захватить подслизистую оболочку надо так, чтобы не проникнуть внутрь кишки. (6) Возможно сшить подслизистую оболочку шов за швом без перфорации этого слоя и без захватывания слизистой оболочки. (7) Если произошла перфорация подслизистой оболочки, то безусловно иголка проникнула внутрь кишки. (8) Швы, которые не перфорировали подслизистую оболочку и не вошли внутрь кишки, позже делаются субперитонеальными. Швы же проникающие в кишку образуют язву и выделяются внутрь кишки. (9) Опасность перитонеальной

складок кишечнаго обрубка, образованных неправильно сделанными швами, т. е. швами которые не захватили слизистую оболочку. (10) При операции Фредет-Ранстедта на младенцах, опухоль Pyzorus'а разрезывается до подслизистой а не до слизистой оболочки. (11) До предприятия этого шва в человеческой брюшной хирургии, полезно чтобы хирург упражнялся в накладке этого шва на свежем человеческом кишечнике при трупном вскрытии, или же на собачьем кишечнике в хирургических лабораториях или же на свежем свином кишечнике в бойнях. Таким образом он может усовершенствоваться в накладке этого подслизистаго шва.

BOOK REVIEWS

Dental Treatment of Maxillo-Facial Injuries. W. Kelsey Fry, P. Rae Shepherd, Allen C. McLeod, Gilbert J. Parfitt and F. R. Fraser. 443 pp., profusely illus. $6.50. J. B. Lippincott Co., Philadelphia, 1944.

In approaching this text on maxillo-facial injuries and the dental treatment thereof, one feels that the authors, one of whom gained a vast experience in the past war, could not write anything but what would be of inestimable value, based on scientific experience and results.

Like all British texts, it is extremely readable and demonstrates clearly how many trivialities in major repair can be of the utmost importance to a good end result. The chapter on bone repair and complications is particularly impressive. This portion of the work will help the oral surgeon as well as the general plastic surgeon.

In the discussion of the different types of fractures I feel that too little stress has been laid on the modern fixation splint, as the wiring procedures, which are thoroughly demonstrated and approved, do not, in my opinion, seem as applicable in extreme facial injuries where the odentulous mouth has to be dealt with. The attention to detail in each case seems to be very important, and I infer that authors are more concerned with a good compensatory function than with a good cosmetic result in the permanent repair.

In summarizing the many good features of this book, I feel that the authors have portrayed for us in detail all that pertains to that better class of surgical and dental treatment. I have not hesitated to recommend it to my senior students for review and reference.

Varicose Veins, Hemorrhoids and Other Conditions; Their Treatment by Injection. R. Rowden Foote, Physician-in-Charge, Injection Clinic, Royal Waterloo Hospital, London. 119 pp., 54 illus. H. K. Lewis & Co., Ltd., London, 1944.

This compact volume on the treatment of varicose veins and hemorrhoids by injection is a valuable addition to the literature on the subject. The author feels that the pendulum has swung too far in the direction of surgery, and that many cases can be treated by injection alone. This is a healthy outlook and an important one to impress on the minds of modern practitioners. The author is very enthusiastic about the injection treatment of hemorrhoids, and this chapter is particularly well done. Caution should be used, however, in accepting his recommendations for its use in the treatment of hydrocele.

The reviewer questions the dogmatic statement that the sapheno-femoral junction is two inches below Poupart's ligament. Although this is true in most instances, he has noted quite a bit of variation in his dissections and surgery as to where this junction may be located. Fig. 5 on page 7 clearly illustrates the variations in the tributaries of the internal saphenous vein and demonstrates the erroneousness of the present belief that five such tributaries must be found.

Chapter III, written by Rodney Maingot, on opertive treatment of varicosities is excellent. The reviewer was especially happy to note the writer's recommendation that varicose vein surgery should be done in the operating room, and not be pushed aside as a dispensary procedure.

On the whole, the book is very well done, containing valuable informative diagrams on the anatomy, tests and procedures. It is highly recommended to every physician and surgeon interested in sclerotherapy.

Reconstructive Surgery of the Eyelids. Wendell L. Hughes, M.D. 60 pp., 30 pl. C. V. Mosby Co., St. Louis, 1943.

This compact but comprehensive volume, which was the author's thesis for admission to the American Ophthalmological Society, presents an extensive and complete historical survey of the subject from the time of Celsus until the present. An excellent bibliographical survey supplements the text. Numerous fine photographs and diagrammatic sketches of operative procedures enable the beginner or the advanced student of the subject to acquire information on operative technics both past and contemporary.

The author presents his own method of blepharopoiesis with case reports and photographs, pointing out steps in technic that gave imperfect results. In addition the author refers the reader to seven motion pictures depicting the cases and procedures cited in the text.

Extensive name and subject indices supplement this desirable volume.

Urological Surgery. Austin I. Dodson, Professor of Urology, Medical College of Virginia. 768 pp., 576 illus. $10. C. V. Mosby, St. Louis, 1944.

Surgical problems of everyday urologic practice are excellently presented in this new volume which provides a valuable supplement to existing works on the principles and practice of urology. Designed to fit the needs of the general surgeon, the diagnosis and pathology of the urogenital system are touched upon as an aid to the surgeon who lacks basic training in urology.

The anatomy of the urogenital tract, examination and pre- and postoperative care introduce the discus-

(Continued on page 502)

The Use of Praeputium Skin in "Structive" Surgery

J. F. S. ESSER, M.D., F.I.C.S. (HON.)
MONACO

IN this paper is presented for the first time the use of the praeputium in "structive" surgery, which has been used by the author on several occasions with marked success. The praeputium is the only skin that is more than superfluous; *i.e.,* it increases the danger of infection. This is the reason why Moses wisely ordered circumcision as a religious act, since this is a sanitary precaution and lessens the danger of infection. Such was the opinion also of Mohammed and other leaders. In Europe and in the Northern countries generally, circumcision is not prevalent because the danger of infection is less than in hot countries.

I introduced the use of the praeputium for restoration of different defects anywhere on the body, limbs or face, and also for holes in the palate and especially nose defects. I never transplanted it freely, but I always attached it pedicled either to the palm of the first or fifth metacarpus, to tips of the fingers or to the wrist. After it had grown together at the place of attachment, it was cut from the penis and brought to the desired place, attached to the existing or purposely made wound. After it had healed there, it was separated from the hand.

One important advantage is that the praeputium may be employed by the general surgeon, who is inexperienced in cutting pedicled grafts, since it is flexible and suits any form of wound. It may be used for grafts on penis, urethra and bladder (ectopy).

I give the following advice to those who intend to repeat these operations: Tell the patient never to mention that the praeputium has been used for his face. I once had a case in which I made a new nose for a soldier. When he told his comrades that his nose had been made from praeputium, they never ceased to tease him about it and to make offensive remarks and jokes about the reactions on his fiancée. He was so incensed by this that after several months he insisted on having another nose made.

Patient *K* had lost almost his entire

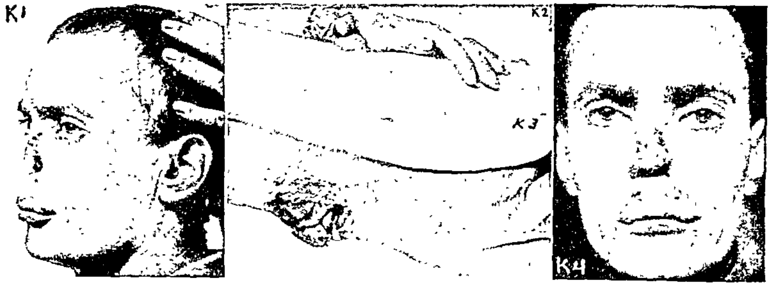


Fig. K 1. Patient who has lost almost entire nose. 2. Position of the praeputium united with the wrist and still retaining a pedicle to the penis. 3 Praeputium attached to the wrist only. 4. Praeputium already forming the nose (Fig. K1). Fig. K2 shows the position of the praeputium united with the wrist and still retaining a pedicle to the penis. Fig. K3 shows the praeputium attached to the wrist only. In Figs. K4 and K5 we have the praeputium already forming the nose.

Patient *A* had lost his right eye and the whole of his nose (Fig. A1). An attempt had been unsuccessfully made elsewhere to construct his nose. A part of this flap had resisted necrosis but was not sufficient to make a nose. Fig. A2 shows the application of the praeputium which entirely covers the new nose. Corrections had still to be made on the nose, upper lip and eyelid when I went away.

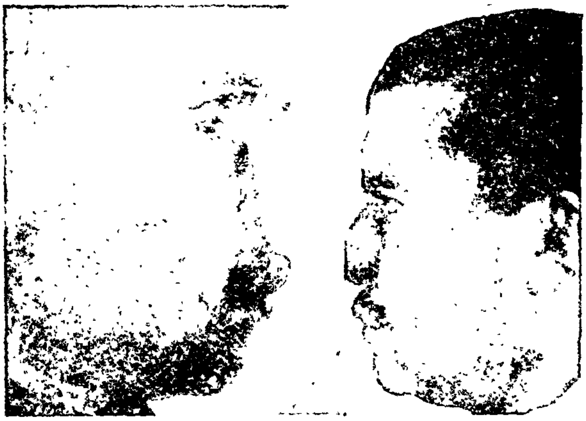
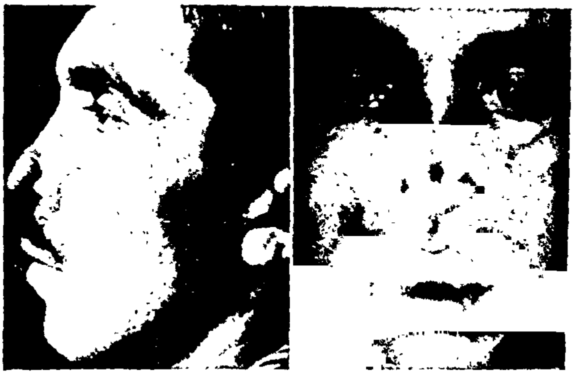


Fig. A 1. View of patient who had lost his right eye and the whole of his nose. 2. Application of the praeputium, which entirely covers the new nose.

Patient *KO* had the tip of the nose missing. It was restored by a pedicled praeputium transplantation, as seen on photograph KO 1-2.

SUMMARY

Use of the praeputium skin is recommended for purposes of reconstructive surgery for defects anywhere on the body, limbs or face. However, the patient is cautioned never to mention that praeputium skin has been used for the face. Three cases of its successful use are presented.



KO (1 and 2). Restoration of missing tip of the nose by a pedicled praeputium transplant.

SUMARIO

El uso del prepucio se recomienda en la cirugía de reconstrucción de los defectos donde se encuentren en el cuerpo, extremidades y de la cara.

En todo caso se debe advertir al paciente no hacer mención que la piel de prepucio fué empleada para defecto de la cara. Tres casos de uso y de éxito son presentados.

RÉSUMÉ

L'emploi du prépuce est recommandé pour la chirurgie reconstructive de défauts de différentes parties du corps, membre ou figure. Le malade maintiendra sous silence l'origine de la greffe. L'auteur présente trois cas.

Выводы

Рекомендуется употребление кожи крайней плоти (preputium) для восстановления недостатков тела, конечностей и лица. Однако, необходимо предупредить пациента, никогда не упоминать, что кожа крайней плоти была употреблена для лица. Описаны три случая успешнаго употребления этой кожи.

The Nature of Medical Organization

DR. MORRIS FISHBEIN

EDITOR, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

(Convocation Address delivered at the Ninth National Assembly, Philadelphia, Pa., Oct. 3-5, 1944)

Dr. Morris Fishbein,
Editor *Journal of the American Medical Association.*

AT Naples in Italy in 1560 an organization of scientists met for the first time. At least this was the origin of scientific societies unless we conceive that the Hippocratic school on the island of Cos was in essence a scientific medical organization. The first scientific society to be formed in Great Britain was established in 1660 and began to publish its transactions in 1664. Here were published the first important works of Leeuwenhoek and Malpighi.

The first medical congress was opened at Rome on March 10, 1681, and lasted until June 8, 1682, with three or four meetings each month and with a total attendance of 46 physicians.

In the United States the first medical organizations appeared in Boston in 1735, New York City in 1749 and Philadelphia in 1765, after which they followed rapidly in many eastern and New England states.

As the science of medicine advanced and as specialization appeared, organizations began to be created for the discussion of specialistic subjects. Long before the special societies were formed, however, the American Medical Association appeared in 1847—just fifteen years after the organization of the British Medical Association. The chief purpose of the organization of the American Medical Association was the improvement of the then disgraceful status of medical education in the United States. With the formation of the American Medical Association came the adoption of "The Principles of Ethics"—the American form of which was drafted by Isaac Hays, first editor of the American Journal of Medical Sciences, in Philadelphia.

These are the simple beginnings of the organization of physicians in the United States. An analysis of medical organization in the United States s[illegible] med-tion, if not even the most over-organized of all occupations.

Our fundamental organization for scientific, economic and representational purposes is the county medical society. The American Medical Association is the most democratically organized group in the nation. Its county medical societies elect representatives to the state medical societies and they, in turn, elect their own representatives to the House of Delegates—the election being wholly on a proportional basis. In the House of Delegates are made the policies that guide the Board of Trustees and the officers of the Association. Such functions as they undertake are wholly within the limits set by the House of Delegates.

For scientific purposes the American Medical Association is organized into scientific sections representing all of the medical specialties. Surgery is included in no less than five of these sections specifically and in most of the others partially. Thus the Sections on Surgery, General and Abdominal; on Obstetrics and Gynecology; on Ophthalmology; on Laryngology, Otology and Rhinology; on Urology and on Orthopedic Surgery deal specifically with surgical subjects and in some instances with medical subjects as well, whereas the Sections on Neurology and Psychiatry, Dermatology and Syphilology, Pathology and Physiology, Radiology and Anesthesiology are also concerned in many of their discussions with surgical subjects. In addition, the Scientific Exhibits of the American Medical Association and the General Scientific Assemblies give much attention to surgery. While these Sections are organized largely with a representation of specialists among their officers and their executive committees, their appeal is primarily toward extending to the general practitioner the advances that are made in the special branches of medicine.

Medicine in the United States is also organized for medical educational purposes. To meet the needs for educational controls, there are such groups as the Council on Medical Education and Hospitals of the American Medical Association, whose functions are wholly judicial and advisory, the Association of American Medical Colleges, the Federation of State Licensing Boards, and the individual colleges and licensing boards throughout the nation. Their functions are concerned primarily with educating young men to the point at which the degree of doctor of medicine may be conferred upon them and, thereafter, through the state licensing boards to determine that the candidate reaches a minimum standard of knowledge in the diagnosis and treatment of disease.

So great, however, has been the advancement of medical science in recent years that specialization has increasingly modified the form of medical practice. There has always been specialization in the practice of medicine. Even Herodotus wrote of eye specialists among the ancient Egyptians. In the time of the ancient Greeks there were some physicians in the school of Hippocrates recognized as especially proficient in certain arts and in certain practices in the medical field. In the Oath of Hippocrates the physician pledges himself not to cut for stone but to leave that to those who are skilled in that art. Variously it has been estimated that there are today in the practice of medicine in the United States approximately 65 per cent of general practitioners and 35 per cent of specialists. In 1932 the distribution of physicians in specialties indicated 48,000 out of a total of about 160,000 in practice. Of these, almost 13,000 were surgeons. Exact figures are not available because as yet, even with the existence of the certifying boards in the specialties, the demarcation from one specialty to another is not quite exact. The tendency would seem to be more and more toward placing upon the certifying boards in the various specialties the responsibility for the necessary investigations and examinations to indicate that a young man is qualified to practice a specialty.

Few of the public understand the significance of certification. A surgeon who is qualified by the American Board of Surgery receives a document representing participation by seven surgical organizations. The document indicates that the moral and ethical standard of the surgeon is satisfactory to the Board, that he is a member of his national medical organization, that he has limited his activities to the practice of surgery, that he is a graduate of an approved medical school, that he has completed an internship of not less than one year in an approved hospital and that he has had a period of special training in surgery of not less than five years thereafter. That period of special training shall have placed emphasis on the basic medical sciences and shall have included adequate operative experience in which the candidate has assumed the whole responsibility.

No doubt the time will come when every practitioner of surgery in an approved hospital in the United States will hold the certificate granted by such an examining body. In the intervening period the public must select a surgeon on the basis of his repute among his fellow practitioners, his position on the staff of an approved hospital, and such knowledge as it may be able to secure as to the training which he has had for the practice of surgery.

There are in the United States at this time more organizations in the field of surgery than in almost any other medical specialty. The reason is obvious to the surgeon if not to anyone else. The development of surgery made it at first the child of a single parent—nan anatomy. For a long time the lo route to success in surgery began the teaching of anatomy and practic cadavers. With the advancemen medical science through various ep surgery began to partake more and of the knowledge of the other basic ical sciences. The evolution of the tice of surgery from the anaton through the pathological and bact logical periods to a surgery that is marily physiological is one of the interesting records in the histor medicine. A surgery that was prim based on anatomy was primarily a rather than an art and a science. the early years of the nineteenth cen surgery consisted of a few operat performed on various portions of body according to a strict routine down by some surgical master. The gical eponyms proceed from Al operation, which is a lateral intes anastomosis made with rings of ca through Bassini's technic for the ra cure of inguinal hernia, Billroth's and second gastrectomies and the Fr Ramstedt operation for pyloric ste on to the Kraske operation for c noma of the rectum, the McBurney o ation for appendicitis to Pirog amputations, Wyeth's removal of hip and Young's prostatectomy. doubt it will ever be the ambition technical surgeon to attach his nam some technic so that the surgeon of future will always recall him as he d incises the skin with an "S" shape horizontal incision, puts on a M clamp or a Deaver scissor. I sup that after the honor of remaining mortal through a surgical tec eponymic permanence by a clamp, sor or a drainage apparatus is q secondary.

The period of anatomy was ap followed by the influenc f pa

In the history of surgery, pathology may well be called the judge that certifies to the child's legitimacy. It was a great day for surgery when medical organization was able to insist on examination by the pathologist of every tissue removed during a surgical operation. For the protection of the public no other step has been more significant, but the true advancement of surgery came with the development of anesthesia and asepsis. Now for the first time there entered into the picture of surgery an element to which far too few human beings gave adequate consideration. I refer, of course, to the element of time. Without anesthesia and asepsis the surgeon had to work far too rapidly for the safety of his patient. Today a delicate plastic operation on the hand, the removal of a tumor from the brain, an intricate operation within the abdomen or the chest may require hours and hours, during which anesthetics relieve the patient from pain, asepsis insures him against infection, blood plasma and blood transfusion control shock and hemorrhage, and the surgeon can take his time. With the need for haste removed from surgical procedure, it became possible for the surgeon to study carefully the steps taken during a surgical operation. With this change came accent on restoration of normal function rather than on removal of pathological tissue.

Modern surgery demands a basic knowledge far beyond anything that was required of the surgeon in a previous generation. I need only refer, for example, to the fundamental studies that are now being made on the treatment of the hypertrophied prostate gland. The technic of treatment used today as compared with the procedures of a previous generation reveals emphasis now on the use of glandular substances to control some of the aspects of prostatic hypertrophy, transurethral electric coagulation in many instances of pure hypertrophy, and reservation of surgical procedure to those cases in which proper biologic control cannot be had by the combined approach that has been mentioned. Much the same approach is had in the modern control of cancer, using chemical forces, physical forces, glandular and surgical forces. These scientific interpolations are made in this address merely to provide groundwork for the emphasis to come on education in surgery.

The education of a modern surgeon is pointed definitely toward certification by the American Board of Surgery. Once the embryonic surgeon emerges from the formative stage with the birth certificate that entitles him to live in the surgical atmosphere, he begins truly to partake of surgical pabulum. Now his mornings are spent in the operating room, his afternoons in visiting his patients and in conferring with those who visit him, his evenings (unless there are emergencies) poring over surgical periodicals and participating in surgical meetings. Thus he need not suffer any deficiency diseases from a lack of surgical nourishment. Surgical societies are innumerable and most of them have their own periodicals.

Among the educational activities available to the young surgeon emphasis must be placed first on the hospital conference in which the results of pathological study applied to specimens removed at operation or at postmortem become available. Participating in the hospital conference are the internists, the clinical pathologists and the roentgenologists who bear with the surgeon part of the burden for diagnosis—occasionally some of the burden for the treatment.

If the surgeon is resident in a large city or near a large city, he has his own local surgical society like the Chicago, New York and Washington Surgical Associations. In a few of our larger states there are state surgical societies and in not a few of the state medical societies special sections are devoted to surgery. Then come the regional surgical societies with the Western, the Southern, the Pacific Coast, the Southeast, the New England, the North Pacific and similar groups. Still higher on a national scale are the American Surgical Association, the American College of Surgeons and the International College of Surgeons. But even beyond these groups come the clinical clubs, the interurban societies, and still smaller units of the self-selected and self-anointed who travel about and visit each other's clinic for scientific knowledge, social relationships and perhaps also a little political maneuvering. I have purposely avoided any attempt to list the innumerable special societies in orthopedic surgery, urology, thoracic surgery, gynecology, and whatnot. Some time ago I found that there were thirty-two medical meetings in a given month in the city of Chicago, and the doctor who wished to do so, could have spent each of his nights and most of his days sitting in some surgical conference.

The motivations for organization in medicine are many. They include not only the purposes to which reference has already been made but no doubt also the tendency toward exhibitionism that is invariably a part of the character of every virtuoso and the desire for recognition that is satisfied by the paraphernalia, regalia and alphabetical appendages inherent in membership in many of these societies. No doubt the time has come when every young man trembling on the threshhold of entrance into medical practice must scan with skepticism and scientific meticulousness the various appeals for his membership and his participation in medical organizations.

The needs for continuous education in
surgery cannot be doubted. In a rec
survey conducted under the auspices
the Council on Medical Education a
Hospitals of the American Medical As
ciation and its Committee on Postw
Medical Service a questionnaire was s
to all of the physicians in the arm
forces. While the returns have not
become available, the leaning towa
surgery that is an inevitable accompa
ment of the service of the doctor in w
is already clearly apparent. There w
154 men out of 518 in the first sam
who stated that they wanted extra edu
tion in surgery when they come home.
classification by age groups indica
that the chief demand was from m
graduating since 1938 with a stea
dwindling so that surgery interes
only 7 who graduated in the years
tween 1920 and 1929, and only 2 w
graduated before 1920. As the questi
naires come in, it is apparent that th
early figures are sustained by the la
reports.

Equally interesting, however, was
extent to which the majority of m
wished refresher courses of six mont
duration or less, and the tremend
number who wished merely what is cal
a "refresher." If all of these young m
were to be given what they themsel
request in the way of facilities for ex
education, there would need to be
tremendous expansion in the facilit
available for the study of surgery.
doubt something can be done to div
some of this energy and interest i
some of the other fields of medi
science where the needs are proba
greater.

War is always a stimulus to interest
surgery and to surgical advanceme
Next most important after war for t
purpose is travel. One of the very ea
est medical philosophers, Paracels
pointed out that a physi [illegible]
learn by sitting at home bel

but by traveling about to see what others are doing. Among all of the branches of medical science, the surgeons are the greatest travelers. The needs of the surgeon in this regard were met in the period before this war by the International Society of Surgery, which, unfortunately, seems to have passed into a state of innocuous desuetude with the activities of the Germans toward war around 1936.

In the years since 1936 when the International College of surgeons was established, after a conference between its representatives and those of the International Society of Surgery, the International College of Surgeons has maintained such international relations as were possible between the surgeons of the North American continent and the Latin-American neighbors. Internationalism, as far as concerns relationships between the great surgeons of the United States and those of our enemy nations, is inconceivable even if it had been possible. I have heard far too many stories of some of the attitudes that prevailed in international meetings in the period between 1936 and 1940 to have much confidence in what international medical relationships can accomplish when economic and political factors drive our statesmen and our politicians into war. *In the years since 1936 the International Society of Surgery has simply failed to function.* What then of the future?

We approach a postwar world in medicine in which vast changes portend. We contemplate reorganization in the administration of medical service based on new technics for distribution of medical care and new methods for meeting medical costs. This tendency indicates a far greater utilization of what is pleasantly called "elective surgery" than has heretofore been possible. Such changes would signify great advancement, particularly for the correction of correctable defects of birth and growth, plastic surgery for rehabilitation and beautification, reconstructive surgery leading toward the establishment of normal physiologic function. Changes of which men speak include a wider utilization of the laboratory and of the roentgenologic services associated with good surgical procedure, leading toward more prompt and more certain diagnosis and thereby toward more scientific surgical care. One conceives of great hospitals serving as centers for surgical treatment, fed by diagnostic clinics and health centers somewhat far removed in space though not in time because new methods of transportation and communication have shortened the distance not only between continents but also between towns and villages and cities.

The expanding needs for scientific surgery created by new technics of distribution and payment for medical services mean necessary expansion in educational and graduate educational facilities. To those the medical profession is today turning its attention. Those young surgeons who receive the accolade of recognition by the American Board of Surgery, by membership in the American College of Surgeons and in the International College of Surgeons, and perhaps also some day in the revived and restored International Society of Surgery, must carry the burden not only of demonstrating in their own work the heights to which surgery may attain but also in defining the standards and principles by which surgery will become available to all of those who need surgical care.

Editorials

The 'Atlantic Charter' of the International College of Surgeons

Like the world's association of Nations under a canon of political and economic ideals, the International College of Surgeons pursues comparable objectives to that of the national aspirations for liberty and prosperity among the nations of the world.

1. The International College of Surgeons' surgical concept does not seek encroachment upon other surgical groups for control, domination or enforcement, but, indeed, while maintaining legitimate and competent autonomy, it strives for joint collaboration for the attainment of the highest scientific and ethical standards, and for the stimulus of the national genius inherent in each nationality, solely for the benefit of humanity.

2. It disclaims any intent to change the chosen practice among the schools, hospitals and surgeons of the various nationalities, but instead it aims to capitalize upon the experiences of the leaders in surgery for the benefit of all concerned.

3. It seeks a fundamental respect and recognition for the rights of surgeons and surgical institutions to their own self-government and initiative in the quest for knowledge, encouraging all freedom of action and originality in the coördination of united power to secure the ideals of maximum efficiency in other fields of practice and teaching.

4. The International College of Surgeons does and will endeavor, with due respect and faith in its aims and objectives, to secure equal enjoyment of opportunity and privilege for all its component Chapters, be they large or small and where Chapters have not been organized, to invite the interest and representation of the College at the hands of the ablest and foremost surgeons throughout the world, which are needed for the coöperation and advancement of our organization.

5. It is desired that through this collaboration and fellowship of universa surgical talent, all forward and constructive activity will bring forth the uplifting of the Art and Science of Surgery, which cannot otherwise be attained

The International College of Surgeons is conscious not only of its aims and objectives, but of the responsibilities entailed in its program of activities for the duration of the war. It has steadfastly overcome all obstacles in its path to render service in the war effort, as shown by the fact that one-fifth of the membership of the United States Chapter has joined the military medical services a home and abroad and we have no doubt although we have not the necessary information, but that many of our foreign members are enlisted in the services of their armed forces.

The annual meetings of the United States Chapter and the biennial assemblies of our international organization of chapters have been devoted to further the contributions primarily to the war effort, as well as all possible activity in the scientific advancement of our profession along all lines of research and endeavor. We have had our difficulties and discouragements arising from the natural forces which, conflicting with the national mobilization of all war efforts, rendered the effectiveness of Assemblies of questionable result, but our Congress in Denver in July, 1942, our Assembly in New York in June, 1943, and the Meeting in Philadelphia in October, 1944, have all been such a signal success in furthering the dissemination of knowledge and preparing our organization for the vast responsibilities in the post-war activities of the medical profession that we have only reason for encouragement in holding our Annual Meetings and Biennial Assemblies.

In our meetings during the war, it has been the firm objective of the International College of Surgeons to devote the features of the Scientific Program and exhibits solely to the gain of knowledge drawn from the injuries and diseases of the battlefields, as well as the strain by the demands of the civil population upon the home medical services, with the natural shortness attending the concentration on all-out needs of the day, and this has been done with due consideration to the minimum possible interference with the man-power and supply required by the overwhelming call of military urgencies.

Desiderio Román.

Following the Path of Aesculapius*

SENSORY and rational education are of equal importance in training the student with the acknowledged necessity of scientific instruction.

Education of the *senses* is of particular value in medical diagnosis. The development of his capacity for sensual perception is an important aid in detecting and classifying many symptoms. Observing our students, it becomes evident that those who show talent for drawing, or better still, for painting, are more acutely aware of morphological structure, while those who have received a musical education are better fitted to differentiate delicate nuances of auscultatory phenomena and information gained from percussion. Students of painting, sculpture and music evidence greater aptitude in perception because of the special training and greater acuity of their sensory organs.

The most important obligation of the teacher is to guide the student's thought and help him coördinate his findings and reach sound conclusions. Logic and reason has constant application to all clinical work. The medical student must learn to think and rationalize.

The sons of Aesculapius owe humanity certain indispensable moral obligations. The example of the teacher is of fundamental importance. Constant attention should be paid to the moral conduct of the student. With this end in view, the "Oath of the Medical Student" should be obligatory to every young man on the path to perfection in his chosen calling. This oath parallels the "Hippocratic Oath." By constant repetition it induces the student to read carefully, to meditate solemnly and be inculcated with the profundity of its precepts. An outline of such an oath follows:

"In order that the satisfaction of a good moral life and the tranquillity of a just and sincere life may be mine in my studies and the exercises of my profession; in order that my social life may be blameless; in order that the highest approval of my parents and all men may be mine; I, a student of medicine, aiming to know and understand, with an unshakeable determination, hereby consecrate myself to the relief of suffering humanity, whom I shall serve with loyalty, benevolence and responsibility.

"I swear

To learn and to use my knowledge to good purpose, to study constantly, devoting all my strength and liberty thereto, in order to improve my knowledge of the medical sciences, respecting always the rights of my co-workers and their desires for advancement.

"I swear

Never to forget on entering the temple of medical practice that 'allis vivere,' to live for others, is engraved above the portal, and consequently I swear to treat each man with justice and charity wherever possible.

"I swear

To be severe with my own self and indulgent with others; to perfect myself in soul and body; to oppose disorder and danger with all my strength and principles.

"I swear

To love my career like a perfect thing, because loving it so is a revelation of my own destiny.

"I swear

To follow the advice of my elders, to receive with pleasure the counsel of others.

"I swear

To identify the respect inspired by my school with that of my home; that of my teachers with that of my parents; and that of my companions with that of my brothers.

"I swear

To cultivate prudence that accepts risks, but never intimidates; prudence that shows when life should be risked for the honor and well-being of the family, of the school or the glory of all humanity.

"I swear

That I shall follow the dictates of my conscience to the best of my ability; neither for vanity or fear of criticism will I endanger the life of those entrusted to my care.

"I swear

To strive for success in my studies, and should accolade and honor be my lot, I shall always walk in humility, without affectation, and I shall always remember that fame is fleeting and humility deserves the fruits of a higher life."

Miguel López Esnaurrízar
Mexico.

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*Editor's note. The precepts here expressed have been the guiding light of the profession for centuries, but their constant reiteration is wholesome practice. They are in line with the precepts illuminating the International College of Surgeons diploma, which reads: "Rappelez-vous que la vie et la santé de vos malades dépendent de votre savoir et de votre conscience. Ne laissez jamais les avantages matériels et personnels devenir les guides de votre conduite. Souvenez-vous que votre devoir est de rechercher sans cesse votre perfectionnement professionel. Aussi, n'oubliez jamais les égards que vous devez à vos confrères." To inculcate these precepts, so ably expounded by our Dr. Miguel López Esnaurrízar, into medical students is timely, indeed

CHAPTER ACTIVITIES

PERUVIAN CHAPTER

On May 29, 1944, Prof. Dr. Eduardo Bello, Lima, Peru, celebrated his professional Golden Jubilee, completed on June 5. Impressive ceremonies were held at the Arzobispo Loayza Hospital and at the Faculty of Medicine.

A commemorative plaque was unveiled at an inspiring assembly held at the Hospital in the morning. It was attended by the Minister of Health and other personages prominent in medical, intellectual and social circles. Dr. Juvenal Denegri, in the name of his colleagues, spoke in praise of Dr. Bello, and Dr. Carlos Villarán, speaking for his students, extolled Dr. Bello as the highest example of idealism in medical endeavor.

At his residence in Miraflores, Dr. Bello received a committee from the Mayor of Lima, who transmitted the congratulations of the City Council to Dr. Bello.

At 6:30 P.M. a jubilee service was held at the Faculty of Medicine of "San Fernando" attended by various ministers of state, the Rector of the University of San Marcos de Lima, the Dean of the Faculty of Medicine, the presidents of the medical institutions of Lima and Callao, friends and students of Dr. Bello. After greeting Dr. Bello in the reception room, the gathering moved to the *Salón de Actos* of the Faculty of Medicine. There greetings were read and discourses given by Dr. Carlos Monge, Dean of the Faculty of Medicine, and Dr. Enrique Paz Soldán. Dr. Bello responded graciously.

Dr. Bello is a member of the National Academy of Medicine, of which he was president from 1926-28, of the Academy of Surgery and the Society of the History of Medicine of Peru; he is likewise a Fellow of the American College of Surgeons and the International College of Surgeons. In 1908 he became a professor of the Faculty of Medicine.

COSTA RICAN CHAPTER

Newly elected officers of the Costa Rican Chapter are:

President: Dr. Oscar Pacheco Ch.
Vice-President: Dr. Fernando Pinto E.
Treasurer: Dr. Alfonso Acosta G.
1st Sec'y: Dr. José Manuel Quirce Y.
2nd Sec'y: Dr. Oscar Martinez N.

Dr. Rafael Angel Calderón Guardia, F.I.C.S. (Hon.), ex-president of the Republic of Costa Rica, National Regent and Honorary President of the Costa Rican Chapter of the International College of Surgeons, has just arrived in Mexico City on a vacation trip. After several days he will go to New York, at the kind invitation of Dr. George T. Pack, in whose clinic of the Memorial Hospital he will carry on studies in cancer.

MEXICAN CHAPTER

Dr. Miguel López Esnaurrízar, F.I.C.S. (Hon.), National Regent and Treasurer of the Mexican Chapter of the International College of Surgeons, was delegated to represent the National Faculty of Medicine of Mexico at the 51st Annual Assembly of American Medical Colleges, which met in Detroit. Dr. López Esnaurrízar spent a week with the International Secretary in Chicago, while in the United States.

TURKISH CHAPTER

Announcement was made at the Ninth Annual Assembly of the formation of the Turkish Chapter of the International College of Surgeons. The charter was officially presented to Mr. Orhan Eralp, Secretary to the Turkish Embassy in Washington.

Officers and members of the Turkish Chapter are as follows:

Trustees

Dr. Emin Erkul: Ex-Mayor of Istanbul and Ex-Professor of War Surgery at the Gülhane School of Medicine.
Dr. Fahri Arel: Dean of the School of Medicine, University of Istanbul.
Dr. Hazim Bumin: Surgeon of the Cerrahpasa Hospital and Assistant Professor at the School of Medicine, University of Istanbul.

Board of Trustees

President: Prof. Cemil Pasa.
Vice-President: Prof. Burhanettin Toker.
Secretary: Dr. Derois Manizade.

Members

Dr. Lutfu Kirdar, Governor and Mayor of Istanbul.
Prof. Dr. M Kemal Oke.
Prof. Dr. Fuat Fehmi Caculi.
Dr. Nasit Erez, Gynecologist.
Dr. Aziz Fikret, Gynecologist.
Dr. Naci Bengisu, Oculist.
Dr. Irfan Basar, Oculist.
Dr. Hakki Ayri, Oculist.

Turkish Chapter, International College of Surgeons. Standing: sixth from left, Dr. D right, Dr. Hazim Bumin, Founder and Regent. Seated, left to right: Dr. Avni A Founder and Regent; Dr. Mrs Suat Gız, Member; Dr. Burhanettin Toker, V Member; Dr. Fahri Arel, Founder and Regent; Dr. Naci Bengisu, Member (

Dr. Nejat Kulakçi, Oto-rhino-laryngologist.
Dr. Naci (deceased), Oto-rhino-laryngologist.
Dr. Haydar Ibrahim Aydar, Oto-rhino-laryngologist.
Dr. Hami Dilek, Surgeon Neurologist.
Dr. Behçet Sabih, Surgeon Urologist.
Dr. Ali Esref Gürel, Surgeon Urologist.
Dr. Feridun Sevket Evrensel, Surgeon.
Dr. Sinaski Hakki Erel, Surgeon
Dr. Avni Aksel, Surgeon.
Dr. Hilmi Evyapan, Surgeon.
Dr. Zizer, Surgeon.
Dr. Halt Ziya, Surgeon.
Dr. Ata Topaloglu, Surgeon.
Dr. Kemal Ozbay, Surgeon.
Dr. Murat Aydin, Surgeon
Dr. Suat Giz, Surgeon.
Dr. Ayet Giz, Surgeon.
Dr. Sait Tokdemir, Surgeon.

UNITED STATES CHAPTER

Dr. Oswald S. Lowsley, New York City, recently returned from a six weeks tour of Central America, where he delivered a series of lectures and conducted operative clinics in the medical colleges of Honduras, El Salvador, Guatemala and Mexico.

NEWLY ELECTED REGENTS AND ALTERNATES—DISTRICTS OF UNITED STATES

DISTRICT	STATES	REGENT	ALTERNATE
No. 1	*Connecticut* *Massachusetts* *Maine* *New Hampshire* *Rhode Island* *Vermont*	Dr. James A. Gettings, 209 Whalley Avenue, New Haven, Conn.	Dr. Geo. S. Foster, 925 Chestnut Street, Manchester, N. H.
No. 2	*New York*	Dr. Chester A. Peake, 1854 Bedford Avenue, Brooklyn, N. Y.	Dr. Henry M. Scheer, 522 West End Avenue, New York City
No. 3	*Delaware* *New Jersey* *Pennsylvania*	Dr. Watson B. Morris, 193 Morris Avenue, Springfield, N. J.	Dr. Elmer Hess, 8 East 12th Street, Erie, Pennsylvania
No. 4	*Dist. Columbia* *Maryland* *North Carolina* *Virginia* *West Virginia*	Dr. Thos. J. Hughes, Shenandoah Life Bldg., Roanoke, Virginia	Dr. John E. Cannaday, Charleston General Hospital, Charleston, W. Va.
No. 5	*Alabama* *Florida* *Georgia* *South Carolina*	Dr. Gilbert F. Douglas, 1111 South 20th Street Birmingham, Ala.	Dr. John M. Wilson, Van Antwerp Bldg., Mobile, Ala.
No. 6	*Kentucky* *Tennessee*	Dr. Herbert Acuff, 402 Medical Arts Bldg., Knoxville, Tenn.	
No. 7	*Michigan* *Ohio*	Dr. Clark D. Brooks, 113 Martin Place, Detroit 1, Michigan	Dr. Chas. E. Holzer, Holzer Hospital and Clinic, Gallipolis, Ohio

No. 8	*Indiana*	Dr. Thos. B. Noble, Jr. 23 E. Ohio Street, Indianapolis, Ind.	Dr. J. Rudolph Yung, Rose Dispensary Bldg., Terre Haute, Ind.
No. 9	*Illinois*	Dr. Alfred A. Strauss, 104 S. Michigan Avenue, Chicago, Ill.	Dr. Karl A. Meyer, 30 N. Michigan Avenue, Chicago, Ill.
No. 10	*Wisconsin*	Dr. Wm. J. Carson, 425 E. Wisconsin Avenue, Milwaukee, Wis.	Dr. Lemuel D. Smith, 2454 W. Kilbourn Avenue, Milwaukee, Wis.
No. 11	*Arkansas* *Louisiana* *Mississippi*	Dr. Theodore J. Dimitry, 4325 St. Charles Avenue, New Orleans, La.	Dr. Dewell Gann, Jr., P O. Box No. 5, Benton, Ark.
No. 12	*Iowa* *Missouri*	Dr. Edward V. Mastin, 3720 Washington Blvd, St. Louis, Missouri	Dr. M. C. Hennessy, 306 Bennett Bldg., Council Bluffs, Iowa
No. 13	*Minnesota* *North Dakota* *South Dakota*	Dr. Olaf J. Hagen, Fargo Clinic, Fargo, N. D.	Dr. Owen King, 214½ S. Main Street, Aberdeen, S. D.
No. 14	*Nebraska*	Dr. Chas. L. Hustead, 116 West 16th Street, Falls City, Neb.	Dr. Cleland G. Moore, Stephens N. Bank Bldg., Fremont, Neb.
No. 15	*Kansas* *Oklahoma*	Dr. Andre B. Carney, 915 S. Cincinnati Street, Tulsa, Okla.	Dr. W. P. Callahan, 1108 Brown Bldg., Wichita, Kansas
No. 16	*Texas*	Dr. Henry H. Ogilvie, 205 Camden Street, San Antonio, Texas	Dr. Felix P. Miller, 1200 First N. Bk. Bldg., El Paso, Texas
No. 17	*Colorado* *New Mexico*	Dr. W. T. H. Baker, 702 N Main Street, Pueblo, Colorado	Dr. Geo. B. Kent, Republic Bldg., Denver, Colorado
No. 18	*Utah* *Wyoming*	Dr. W. Andrew Bunten, Bunten Clinic, Cheyenne, Wyoming	Dr. C. L. Shields, 613 Judge Bldg., Salt Lake City, Utah
No. 19	*Idaho* *Montana*	Dr. J. C. MacGregor, 401 Medical Arts Bldg., Great Falls, Montana	Dr. J. H. Garberson, Garberson Clinic, Miles City, Montana
No. 20	*Oregon* *Washington*	Dr. Roger Anderson, Medical-Dental Bldg., Seattle, Washington	Dr. Brien T. King, Medical-Dental Bldg., Seattle, Washington
No. 21	*Arizona* *California* *Nevada*	Dr. Felix Cunha, 450 Sutter Street, San Francisco, Calif.	Dr. A. E. Gallant, 727 W. Seventh Street, Los Angeles, Calif.

ASSEMBLY ACTIVITIES

THE Ninth Annual Assembly of the United States Chapter of the International College of Surgeons *was formally inaugurated by the Hon.* Bernard Samuel, whose address of welcome follows.

ADDRESS OF WELCOME

HON. BERNARD SAMUEL

MAYOR OF PHILADELPHIA

I was very glad to accept the invitation to come here this morning and extend a hearty welcome to those attending the Ninth Annual Assembly of the United States Chapter of the International College of Surgeons.

It is particularly fitting that you should meet in Philadelphia at a time when we who are charged with the conduct of municipal affairs are planning for the day when our men and women, now in uniform, will return to their firesides.

No doubt, during your discussions, considerable attention will be given to the post-war period. I assure you that planning for the period of transition and for the peace to follow is a "must" on the agenda of city business.

This morning, however, I have been asked to talk to you about Philadelphia as a world medical center and our great hospital—the Philadelphia General Hospital.

I believe it to be the finest of its kind in the world, and I am sure in my estimate of its importance I am supported by many of the members of the medical profession here assembled.

I am advised the assembly about to open is the most important ever held by your organization because in no other war have the demands placed upon the medical personnel of our nation been as great as in the one in which our country is now engaged.

The oldest hospital on this continent is in Philadelphia. It was originally known as the Philadelphia Almshouse and now as the great Philadelphia General Hospital, the finest *municipally conducted institution of its kind* in the world.

It traces its history back to 1742 and I have only to recall a few of the names of members of the staff of the Almshouse and Hospital, as then organized, men whose names are part of medical and general history in the Revolutionary period, to substantiate this statement.

It is hardly necessary to recall to you the services of Dr. Benjamin Rush, both as a signer of the Declaration of Independence and member of the Medical Corps of the Patriot Army.

Then there was Dr. Thomas Bond, the Father of Clinical Medicine in the United States.

Another—Dr. William Shippen, famous *both as the founder of the teaching of systematic* medicine in this country and as a distinguished medical officer during the Revolution.

These distinguished physicians and patriots, outstanding in the history of their country, were members of the staff of the institution now known as the Philadelphia General Hospital.

There were others, however, who served their country and the Almshouse and Hospital with equal distinction. I refer to Dr. Benjamin Duffield and Dr. John Morgan.

A roll call of physicians, scientists, dentists and technicians, all proud of their residence in Philadelphia and who served in various wars in which our country has engaged in the past 168 years, would reveal the names of many who have made invaluable contributions not only to American History, but also to the professions with which they were identified.

Philadelphia's medical, scientific and dental history is rich indeed. Here are located five great undergraduate schools of medicine, an outstanding graduate school and forty excellent hospitals.

Here are located the finest dental colleges in the world and I know I am stating a fact when I declare that graduates of these unexcelled institutions of learning, before the war, were practicing in every country on earth and in every state in the Union.

The profession represented here today can take pride in the great accomplishment of the tremendous reduction in the number of deaths resulting from wounds received on the fields of battle.

I am proud to be the chief executive of the city which has made such a fine contribution to the war effort from every conceivable direction. This is not the place or the time for me to review our activities at any great length, but I would like to say a few words about a phase of our undertakings which I am sure is of special interest to you.

More than 1000 of our physicians and dentists have entered the armed forces of our country and today are serving on the battlefronts of the world, others are in our induction camps and wherever the army, navy or the marine corps is training men and women.

This service in the armed forces has caused a drain on local physicians engaged in civilian practice. Probably no other city has had to face the same problems we have encountered here because of our city's position as a teaching and hospital center. Scores of the leading physicians are giving voluntarily of their time and services to the war effort. Not a few are in research work and others are on advisory groups of various governmental agencies.

I would like, at this time, to make special reference to the United States Naval Hospital in Philadelphia. I took special pride in this institution from the moment decision was made to construct it in Philadelphia. My interest in the undertaking was increased when it was decided to construct it in South Philadelphia not far distant from where I was born and where I have lived since birth. It was peculiarly appropriate that the Naval Hospital should be constructed here because the first military hospital of the Army was organized in Philadelphia in 1861. It, too, was located south of Market Street.

During the war between the states, eminent Philadelphia physicians made valuable studies of gunshot wounds and nerve injuries at the Union Base Hospital here. These physicians included men known to many of you and to me. Two of them were Dr. S. Weir Mitchell and Dr. W. W. Keen.

A year and a half ago, I appointed a planning commission to prepare a comprehensive program for city development during the post-war period. So I will talk to you for a few moments about suggestions which already have been made for improvements at the Philadelphia General Hospital and Philadelphia Hospital for Contagious Diseases.

Completion of the group of buildings at the Philadelphia General Hospital was halted during the depression, and when war came priority restrictions prevented resumption of our construction program.

Some of the old buildings now in use there were constructed in 1834. They appear old by contrast to the other buildings and it is imperative, in my opinion, that they should be replaced as soon as city finances permit.

The building program which has been submitted to the Planning Commission is as follows:

A new building to house the patients now in the Old Men's Nervous Department. This building to be located on the ground now occupied by the tennis court.

The addition of two stories to the two-story building now serving as the operating room.

New kitchens, dining rooms and a storehouse.

Industrial building—at the present time we have no centralized building for the necessary industries of the hospital such as plumbing, steam fitting, electrical work, painting, etc. We are, therefore, using the basements of one-half dozen buildings for our various industries. It is inconvenient and necessitates a tremendous lot of unnecessary work in hauling articles from one shop to another.

New out-patient building to be located on the site of the present Men's Nervous Building.

We are conducting our out-patient departments on the ground floors of half a dozen of our present buildings. The fact that these are so scattered and so poorly adapted for the purpose makes efficient work very difficult.

A new laundry.

The following recommendations for post-war planning have been made for the Philadelphia Hospital for Contagious Diseases:

The constru[illegible] an amphitheatre in order that we [illegible] teach th[illegible] and nurses [illegible] [illegible]pital [illegible] the me[illegible]

Construction of doctors' quarters. This would relieve congestion of the nursing home since many nurses could be housed in the present doctors' home.

Construction of sidewalks and curbing.

Renovation of all steam and water pipes throughout the institution.

In closing, I extend to all of you a most cordial welcome, and trust that those of you who are not Philadelphians will find time to visit our cultural institutions, including our universities and colleges, our museums, not forgetting the Franklin Institute and the Atwater Kent Museum.

I hope you have an opportunity to make pilgrimages to our great parks, including Fairmount Park, the finest municipal park in the world, as well as to our great port and to our industrial and mercantile establishments.

I have purposely refrained from discussing at length Philadelphia's historic background. It is well known to all.

I was born and have lived in Philadelphia for more than three score years and I never tire of visiting our Liberty's Shrine—Independence Hall.

The atmosphere within the old State House, the presence of the Liberty Bell and the relics of the stirring days during which our nation was born, ever thrill me and invariably I depart from the old building prouder than ever before that I am an American.

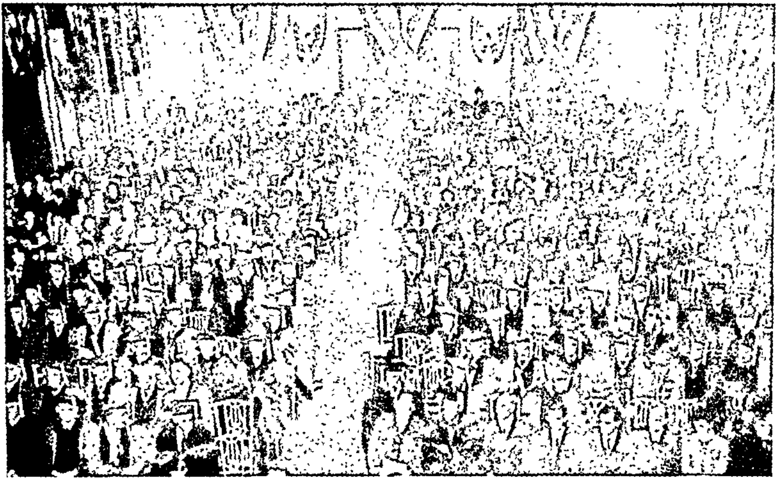
Gentlemen, welcome to the City of Brotherly Love!

May your meetings profit the cause of humanity.

Besides the stimulating scientific meetings, the splendid exhibits and the general business of the Assembly, outstanding features of the event were the Convocation, Service Night and the Banquet.

The **CONVOCATION** under the chairmanship of Dr. Ernest F. Purcell, was a most impressive function. The Crystal Ball Room was crowded. It provided a magnificent setting for the event. The walls were draped with the colors of the United States and the countries represented in the International College of Surgeons. Following the invocation by the Rev. Oscar W. Henderson, the presentation of colors added to the solemnity of the occasion. The banners of the nations, placed at the rear of the platform, created a riot of color and bespoke the international character of the organization and its increasing universality. There followed the oath of allegiance and memorial service in honor of deceased members:

Dr. Thomas A. Shallow, retiring president of the United States Chapter of the International College of Surgeons, addressing a section of the Convocation class.



Section of the Convocation Hall during the Convocation.

Dr. Thomas Shallow spoke of the joy with which he had fulfilled the duties of President of the United States Chapter and his pride in the progress of the organization.

Announcements were made and candidates from the United States Chapter were presented by Dr. Shallow to President Román, who conferred degrees upon the following candidates:

FELLOWS

lished in the March-April issue of the *Journal* and those of the Turkish Chapter appear elsewhere in this issue.

Col. Dean Llewelyn Winn was admitted to Honorary Fellowship in the United States Chapter, and the following were admitted to International membership, degrees being conferred by Dr. Desiderio Román.

CANADA

Dr. Richard Gaudet, Fellow
Dr. Louis M. Bertrand, Member
Dr. Richard Geddes Large, Member

U.S.S.R.

Prof. N. Priorov, Honorary Fellow
General Dr. Justin Dzenelidze, Honorary Fellow
General Prof. Dr. Semyon S. Hervolav, Honorary Fellow
General Dr. Vladimir S. Levitt, Honorary Fellow
Dr. Nikolai N. Blokhin, Fellow
Dr. Alexander P. Kotov, Fellow

NETHERLANDS

Dr. A. Van Tienhoven, Fellow

ISLAND OF CURAÇAO

Dr. F. R. Van de Stadt, Fellow

ISLAND OF ARUBA, NETHERLAND WEST INDIES

Dr. Willem Leendert Harmsen

Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, delivered the address of the evening on "*The Organization of American Medicine.*" (See page 471.)

The Rev. Oscar W. Henderson gave the benediction.

A special feature of the Assembly was **SERVICE NIGHT**, at which Dr. Thomas A. Shallow presided. The gathering was held in the Crystal Ball room at 8 P.M. on Tuesday evening, October 3, and proved an inspiration to all who attended.

Speakers were Dr. Charles M. Griffith, Medical Director, U. S. Veterans Administration, Colonel Augustus Thorndike, Director Reconditioning Consultant Division, Capt. Howard H. Montgomery,

Section of the banquet hall during the banquet.

Chief of Division of Rehabilitation of the U. S. Navy, Capt. Richard A. Kern, U.S.N., and Major General George F. Lull.

The **ASSEMBLY DINNER** was held on Thursday evening, October 5, at 7:30 P.M. in the Crystal Ball Room, with Dr. Rudolph Jaeger presiding. The Honorable Vincent A. Carroll was toastmaster. The invocation was given by Rev. Hubert J. Cartwright. The subject of the address by Dr. Edward J. McCormick was Americanism. Rabbi William H. Fineshriber pronounced the benediction.

PROCEEDINGS OF THE OPENING SESSION OF THE HOUSE OF DELEGATES OF THE UNITED STATES CHAPTER, INTERNATIONAL COLLEGE OF SURGEONS, HELD AT THE BENJAMIN FRANKLIN HOTEL, PHILADELPHIA, PENNSYLVANIA, MONDAY, OCT. 2, 1944

THE opening session of the House of Delegates was called to order by the President, Dr. Thomas A. Shallow, at 2:10 P.M. At the request of the President, the Business Secretary proceeded with the Official Roll Call. The minutes of the last session of the House of Delegates of the United States Chapter, International College of Surgeons, held in New York City, June 14 and 15, 1943, were read by the Business Secretary and approved.

Dr. Thomas A. Shallow reported the progress of the organization. He stated: "We believe that within the past year much has been done to place this organization on a sound educational basis. Men have been carefully selected before being accepted in this organization. Many men have been rejected, possibly a few needlessly so, but the Council must depend upon information it has at hand, and use its best judgment for its action. I believe we are getting the cream of the young men of the surgical profession."

In presenting the Treasurer's report, Dr. Benjamin Golden remarked, "The College is in 'black ink,' and that the budget has been rigidly adhered to in a businesslike manner. From a financial viewpoint, the College is going along on a strictly business basis which is financially sound."

"Dr. Shallow," he added, "our Treasury is being built for education. The money will be placed where it is most needed."

The Secretary's report pointed to certain phases of last year's activities: (1) An unprecedented growth and interest in the College. (2) The *Journal of the International College of Surgeons* continues to be a medium for a large share of inquiries. With the passage of time more applications will originate from the splendid work of the membership and the work of the State Regents. (3) The organization of Districts throughout the States has been a forward step in planning for development that is bound to come in peaceful years. (4) Outline of plan for further progress.

The Editor of the *Journal* reported: (1) From a quarterly publication with a limited circulation, the *Journal* grew to be a bimonthly. (2) It is hoped that as time goes on it will become a monthly—the growth of the College promises that this goal will be achieved. He stated, "Outside of the expenditures absolutely necessary for the production of the *Journal*, there are no paid officers. The editor receives no salary and will accept none if offered. The hyperpieses which ultimately results in calcareous plaques in the aorta and are compensations to most editors, this editor fears these not. Nay he welcomes them in the thought th[illegible] able [illegible] tribute to the advancement of this fine endeavor."

The editor's report was accepted with enthusiasm and acclaim.

The International Secretary presented a message in which he brought greetings of the Board of Trustees of the International College of Surgeons. He said, "They are proud of the advancements of the United States Chapter, which is enshrined in their hearts, as the nucleus of a dynamic force in the activities of the College in a war-torn world. They (the International Board of Trustees) wish you to know, as you do already know from the reports presented in the *Journal of the International College of Surgeons,* that despite the war many chapters have been formed and have enrolled under the banner of the International College of Surgeons. At the Convocation on Wednesday some new chapters will be announced and some new names of surgical luminaries will be added to the roster of the International College of Surgeons.

"Our Dr. Jaeger has presented to you for approval the changes in the Constitution and By-Laws of the United States Chapter. These were submitted by the Chapter to the International Board of Trustees and were approved since the last U. S. Chapter Assembly held in New York City on June 16, 1943. They were printed in the *Journal,* as required by the Constitution and By-Laws, and have been approved by you today. These amendments have one objective only—the advancement of the interests of the individual, the Chapter, and the International College of Surgeons at large."

Dr. Golden moved, and the motion was duly seconded, that the report be accepted as read. Unanimously carried.

Dr. William Seaman Bainbridge, Treasurer of the International College of Surgeons, stated that "during the past year no difficulties have arisen that have not been met. The work of the Council of the U. S. Chapter has been particularly good, and there has been an interlocking of the various groups. We are solvent, with a good vision of the future, in spite of war conditions."

Due to the absence of Dr. Moses Behrend, Chairman of the Board of Examiners, Dr. Shallow commented on the splendid work done by Dr. Behrend.

Dr. Rudolph Jaeger, Chairman of the Constitution and By-Laws Committee, pointed out the changes and amendments to the Constitution and By-Laws over the past year, as recommended by the United States Chapter, and approved by the International Board of Trustees of the International College of Surgeons, and as printed in the *Journal of the International College of Surgeons,* asking that the House of Delegates approve these actions. Dr. Jaeger's report was accepted and approved by unanimous vote.

Dr. Shallow requested a motion ratifying all actions, including changes in the Constitution and By-Laws, taken by the Executive Council of the United States Chapter and as approved by the International Board of Trustees of the International College of Surgeons since the last meeting of the House of Delegates. The motion was unanimously carried.

Dr. Shallow called the roll of the deceased members over the past year. A silent tribute of respect was paid to their memory. The names of the deceased follow:

Dr. Leo Clement Mundy, F.I.C.S.	Wilkes-Barre, Pa.
Dr. Irvin Arthur Weichbrodt, F.I.C.S.	Seattle, Wash.
Dr. Walter Taylor Sheets, F.I.C.S.	Salt Lake City, Utah
Dr. Clifford A. Lutgin, F.I.C.S.	Auburn, Nebr.
Dr. William M. Dunn, F.I.C.S.	Atlanta, Ga.
Dr. Homer F. Wonders, F.I.C.S.	Philadelphia, Pa.
Dr. Ralph A. Bowdle, F.I.C.S.	East Ely, Nev.
Dr. Lloyd Thomas Sussex, F.I.C.S.	Havre, Mont.

In conformity with the Constitution and By-Laws Dr. Shallow appointed a Committee on Nominations to present a slate of officers to be elected at the Final

Session of the House of Delegates, Thursday, October 5, 1944.

The following Resolution was introduced by the International Secretary.

RESOLUTION

WHEREAS, Dr. Charles H. Arnold has been in the past one of the pioneers in advancing the interests of the International College of Surgeons, and

WHEREAS, he has acted as Secretary of the U. S. Chapter of the International College of Surgeons, and

WHEREAS, while as a Major in the Armed Forces and presently overseas, his love and interest for our endeavors are at their height,

BE IT RESOLVED, that in appreciation of his past and present endeavors he be extended a vote of thanks by the House of Delegates and that his name be retained as Secretary of the U. S. Chapter "in absentia" and that that office be restored to him upon his return to the United States and separation from the service of the Armed Forces.

The motion was unanimously carried.

A vote of thanks was extended to the various committees.

Dr. Golden referred to the Constitution in which it states that the Board of Trustees shall be elected to serve for two years, the same as other elected officers. It should be agreed that someone should remain on such committees who has watched the progress. He stated: "Therefore, I would submit to you that we elect, to start this year, members of the Board of Trustees, of which there are two, one for one year and one for two, so with each election there will be a carry-over acquainted with the work."

Dr. Shallow remarked that to make such amendment effective the International Board of Trustees would have to approve such change. The International Secretary stated that he would present the suggested change for approval by the International Board of Trustees. It was then moved and unanimously carried that such change be made.

Dr. Shallow spoke of the organization as a means of advancing younger men: "Organization of various surgical societies throughout this country sponsored by this Organization will be a new step, and a step toward progress for this Organization and the medical profession as a whole. The Guilds might well be incorporated into surgical societies, have so many meetings per year and encourage young men to present their work. This has always been my idea of surgical societies, that you see the same old men and hear the same old material, and that young men get no attention. This is a young man's organization."

Dr. Albert A. Berg stated: "I cannot add to the excellent remarks made by Dr. Shallow, but I can think of nothing that will advance surgery in the younger men more than their interest in such organizations as Dr. Shallow has outlined. The advancement of the younger men, in addition to being members of the parent body, will be a great step for our organization as a whole."

Pittsburgh, Pa., was mentioned as the next meeting place of the Annual Assembly. This matter was held in abeyance until the place of meeting of the International Assembly in 1945 is decided.

A committee, consisting of Drs. Watson B. Morris, James B. MacGregor and William D. Ryan, was appointed to study and report on Post-war Planning.

On the recommendation of Dr. Berg, the motion was made and passed that a copy of the report of the Council be sent to each member of the House of Delegates.

Dr. Shallow declared the meeting adjourned, calling attention to the Final Session of the House of Delegates to convene on Thursday, October 5, 1944, at 11:00 o'clock.

PROCEEDINGS OF THE FINAL SESSION OF THE HOUSE OF DELEGATES OF THE UNITED STATES CHAPTER, INTERNATIONAL COLLEGE OF SURGEONS, HELD AT THE BENJAMIN FRANKLIN HOTEL, PHILADELPHIA, PENNSYLVANIA, THURSDAY, OCTOBER 5, 1944

THE meeting was called to order by Dr. Rudolph Jaeger at 11:00 A.M. Following the roll call, Dr. Jaeger opened a discussion on the proper procedure of the District Credential Committee and Examining Board, pointing out the duty of each Regent to formulate plans to govern his District, and the advisibility of having all District functions conform to each other.

Dr. Simon Reisler presented an alternative plan. A copy of Dr. Reisler's report will be furnished each member of the House of Delegates by the Business Office. *Discussion.* It was unanimously agreed that the International College of Surgeons is a teaching and scientific organization, and that matters suggested by Dr. Reisler should be handled through the A.M.A. *and the A.M.A. alone.* Dr. Reisler stated that he had presented the plan to the A.M.A.

A report on the permanent home of the College in New York by the committee of which Dr. Albert A. Berg is Chairman was then presented and accepted with acclaim.

The following report, sent by the Chairman of the Board of Governors, Dr. Fred Douglass, was then read.

Doctor Shallow and *Members of the House of Delegates:*

I wish to report at this time that Regents have been named in each District, and from here our basic work will proceed.

I want to offer for your consideration, the Resolution this House of Delegates passed in Denver, namely, that each Fellow would help to train or act as Preceptor to returning Fellows, Members, Associate Members and other doctors after the war. This resolution having been passed, it is now time to organize the Fellows in each District and have assigned a returning physician to each Fellow, Member and Associate Member, to act as his assistant or volunteer worker on his service for a period of time.

The A.M.A. has sent questionnaires to all doctors in the Armed Forces and from this report we could have certain men from our districts assigned to us.

Dr. Paren Long, after interviewing many doctors in the service, writes in the last *A.M.A. Journal* that these men will need a kind association upon their return to help them back to their work. It is the duty of not only this College, but of all medical organizations, to do the job well, so that the men who have served their country so well will not say, and rightly so, we have not kept the faith.

Now, I want to thank you all for your kindness to me as your officer during the past years, as it has been a pleasure to work with you and for the principles of the College.

Respectfully,
Fred H. Douglass

The motion was unanimously carried that a letter of thanks be sent to Dr. Douglass.

Dr. Golden suggested the appointment of a committee to make a survey to determine how many men could be accommodated for actual training.

NOMINATION OF OFFICERS

The Nominating Committee presented the following list of candidates for office:

President:
Dr. Rudolph Jaeger, Philadelphia, Pa.
President-Elect:
Dr. William Bates, Philadelphia, Pa.
1st Vice-President:
Dr. Herbert Acuff, Knoxville, Tenn.
2nd Vice-President:
Dr. Roger Anderson, Seattle, Wash.
3rd Vice-President:
Dr. Henry H. Ogilvie, San Antonio, Texas

4th Vice-President:
Dr. Charles S. White, Washington, D. C.
5th Vice-President:
Dr. James C. MacGregor, Great Falls, Mont.
Executive Secretary:
Major Chas. H. Arnold, Lincoln, Neb.
Treasurer:
Dr. Benjamin I. Golden, Elkins, W. Va.
Chairman, Board of Trustees:
Dr. William Seaman Bainbridge, New York, N. Y.
Members, Board of Trustees:
Dr. Custis Lee Hall, Washington, D. C.
Dr. John Royal Moore, Philadelphia, Pa.
Chairman, Board of Governors:
Dr. Watson B. Morris, Springfield, N.J.
Chairman, Board of Examiners:
Dr. Moses Behrend, Philadelphia, Pa.

The presiding officer called for nominations from the floor. None being presented, the slate of officers presented by the Nominating Committee was then unanimously presented.

A committee was appointed to design a suitable key for the United States Chapter of the International College of Surgeons.

A letter of greetings and good will was forwarded to Dr. Fred H. Albee, whom illness prevented from being present, and another letter dispatched to Major Charles H. Arnold, carrying greetings from the House of Delegates, in recognition of his invaluable services to the College. A letter of regrets for his absence and illness, as well as flowers, was sent to Dr. Earl Craig.

The meeting was adjourned at 12:15 P.M.

J. Rudolph Jaeger, M.D., F.I.C.S.

J. RUDOLPH JAEGER, M.D., F.I.C.S

THE newly installed President of the United States Chapter of the International College of Surgeons was born Oct. 29, 1895, in Clarksville, Mo During World War I he served with the armed forces. In 1918 he received his A.B. degree from the University of Missouri, and in 1920 his M.D. degree from the University of Pennsylvania His internship and chief residency were spent in Denver General Hospital, Denver, Colorado.

Since that time he has occupied the following posts: Part time Instructor in Anatomy, Pathology and Physiology at the University of Denver School of Dentistry (1922-1928); Assistant in General Surgery to Dr Charles Jaeger (1922-28); extramural student, Neurological Surgery, service of Dr. Walter Dandy, Johns Hopkins Hospital, 1928-29; Assistant Professor of Surgery in charge of the Division of Neurosurgery, University of Colorado School of Medicine and Hospitals; Neurosurgeon to Presbyterian and Children's Hospitals of Denver; Consulting and Attending Neurosurgeon, Fitzsimons General Hospital, U. S. Army. At present he is head of the Dept. of Neurosurgery of Jefferson Medical College and Hospital, Philadelphia, Pa.

Dr. Jaeger is a member of the Central Neuropsychiatric Association and Licentiate of the American Board of Neurological Surgery. He is a Fellow of the International College of Surgeons

He is much devoted to the advancement of younger men aspiring to specialize in general and neurosurgery.

William Bates, M.D., F.A.C.S., F.I.C.S.

HERBERT ACUFF, M.D., F.A.C.S., F.I.C.S.

DR. ACUFF was born Aug. 22, 1888, at Washburn, Tenn. He attended Carson and Newman College, Kentucky School of Pharmacy, and was graduated from the University of Louisville Medical School in 1911. From 1912-13 he was House Surgeon of the Knoxville General Hospital and in 1917 he pursued post-graduate studies at the University of Pennsylvania and Bellevue Hospitals, the Mayo Clinic and clinics in Vienna and Berlin. In addition to further study in the United States, in 1937 he did post-graduate work in Russia, Norway, Sweden, Greece and Berlin, with special studies in cancer at Stockholm and the Curie Institute in Paris.

Dr. Acuff's affiliations include: Major (MC), U. S. Reserve World War No. 1, in charge of mobile surgical unit in France; Chief of the Staff of St. Mary's Memorial Hospital; Beverly Hills Sanatorium; Attending Surgeon, Knoxville General Hospital; Attending Surgeon, Fort Sanders Hospital; Director of the Eastern Tennessee Tumor and Cancer Clinic, St. Mary's Memorial Hospital; Surgeon for the Southern Railway System; Surgeon for the United States Employee's Compensation Commission; Medical Director of the Office of Civilian Defense. He holds memberships in the Knox County Medical Society, Tennessee State Medical Association; American Medical Association; Southeastern Surgical Congress; Fellow of the American College of Surgeons and of the International College of Surgeons, of which he is First Vice-President of the United States Chapter.

WILLIAM BATES, B.S., M.D., F.A.C.S., F.I.C.S.

Graduate College Department, University of Pennsylvania, 1912; Medical Department, University of Pennsylvania, 1915. Two years internship in hospital of University of Pennsylvania, 1915-17. First Lieutenant, Medical Corps Reserve, 1916, active duty Fort Oglethorpe, 1917, Captain, Base Hospital No. 20 (University of Pennsylvania), 1917. Teaching enlisted personnel anesthesia, etc., 1918. Overseas one year, assistant to Dr. Eliason, 1919. Assigned to Fort McHenry in Baltimore, Md.

Professional appointments include: Howard Hospital, 1919-25; American Hospital for Disease of Stomach, 1919; Graduate Hospital, 1921 to present; Outpatient Dept., Babies' Hospital, 1919 to present. Professor of Surgery, Graduate Medical School, University of Pennsylvania, 1934; Surgeon to Presbyterian Hospital, 1933; Consulting General Surgeon, Wills Hospital; Consulting Surgeon to Philadelphia Home for Incurables.

Dr. Bates' other affiliations include: Past President, Medical Alumni, University of Pennsylvania and member of Board of Directors; Past President, Aesculapian Club of Philadelphia, member of Board of Directors; Past President, Philadelphia County Medical Society and member of Board of Censors; President, Medical Club of Philadelphia and member of Board of Directors; President, Medical Society of the State of Pennsylvania; Member of the House of Delegates of the American Medical Association; President of U. S. Base Hospital Twenty Association; Fellow of the American College of Surgeons; Fellow of the International College of Surgeons and President-elect of the United States Chapter.

Dr. Bates is author or co-author of over 60 articles.

Herbert Acuff, M.D., F.A.C.S., F.I.C.S.

Charles S. White, M.D., F.A.C.S., F.I.C.S.

ROGER ANDERSON, M.D., F.A.C.S., F.I.C.S.

DR. ANDERSON was born at St. Paul, Minn., in 1891. He was graduated with the A.B. degree from Hamlin University and the B.S. and M.D. degrees from Northwestern University Medical School, Chicago, Ill., in 1918. He was instructor in anatomy at Northwestern University. He served his internship at Cook County Hospital, Chicago, Ill., from 1918-20, followed by a three years' orthopedic assistantship, and Post Graduate studies in orthopedics here and on the European continent.

Dr. Anderson has been a staff member of Swedish Hospital, Providence Hospital and Seattle General Hospital; Orthopedic Surgeon to the Crippled Children's Services; on the Orthopedic and Fracture Service at King's County Hospital, and Orthopedic Consultant at the United States Marine Hospital, Seattle. He is a Fellow of the American College of Surgeons; Fellow of the International College of Surgeons and Vice-President of the United States Chapter; Member of the American Academy of Orthopedic Surgeons; President of the Seattle Surgical Society; Past-President of the Northwest Orthopedic Society and of the Western Orthopedic Association.

He is the author of numerous contributions to orthopedic literature.

CHARLES S WHITE, M.D., F.A.C.S., F.I.C.S.

DR. WHITE was born in 1877 He was graduated from George Washington University Medical School in 1905 His present appointments include: President and Chief of Surgery of Doctors Hospital, Consulting Surgeon, Columbia, Garfield and Emergency Hospitals; Professor of Surgery and Executive Officer of George Washington University Medical School; Head of the Dept. of Surgery, Gallinger Municipal Hospital.

Dr. White is a Fellow of the American College of Surgeons and of the International College of Surgeons, being a Vice-President of its United States Chapter Dr. White wields considerable influence in his territory in propagating the ideals of worthwhile surgical endeavor.

Henry H. Ogilvie, M.D., F.A.C.S., F.I.C.S.

HENRY H. OGILVIE, M.D., F.A.C.S., F.I.C.S.

DR. OGILVIE was born on Feb. 7, 1885, at Melissa, Texas. He attended Baylor University and was graduated in Medicine from the University of Texas in 1910. He served his internship at Santa Rosa Hospital, San Antonio, Texas (1910-1911).

Dr. Ogilvie served as Captain (MC) at Base Hospital 79, AEF, 1918-19. At present he is on the staff of all San Antonio Hospitals and was co-founder of the Medical and Surgical Memorial Hospital.

His affiliations include county and state medical societies; the American Medical Association and the International College of Surgeons, of whose United States Chapter he is a Vice-President. In 1930 he won the case records award of the American College of Surgeons. He is well known for his activities toward surgical advancement and much interested in affairs pertaining to the welfare of the medical profession at large.

JAMES C. MACGREGOR, M.D., F.I.C.S.

DR. MacGREGOR was born in Davenport, Iowa, in 1882. He obtained his M.D. degree from the University of Iowa in 1906. Dr. MacGregor has been surgeon of the Anaconda Copper Mining Co., Great Falls, Mont., from 1917 to date, and on the executive staff of Columbus Hospital, Great Falls, from 1918 to date. He is a Fellow of the International College of Surgeons and a Vice-President of the United States Chapter. He has been very active in the Guild Activities of his territory and an untiring worker and enthusiast for the advancement of younger men in their desire to acquire surgical training.

James C. MacGregor, M.D., F.I.C.S.

Charles H. Arnold, M.D., F.I.C.S.

CHARLES H. ARNOLD, M.D., F.I.C.S.

THE Secretary of the United States Chapter of the International College of Surgeons, Dr. Arnold, was born at Dorchester, Neb., in 1888. He was a student at Cotner, Lincoln and Valparaiso Universities; his M.D. was obtained at the Chicago College of Medicine and Surgery in 1913. He pursued post-graduate studies at the University of Vienna in 1930 and 1933.

Dr. Arnold began the practice of Medicine in Lincoln in 1913. He has been Chief Surgeon and Lecturer on Surgery at the Dr. Benjamin F. Bailey Sanatorium; member of the surgical staff of St. Elizabeth's and Byran Memorial Hospital; at present he is Special Lecturer in Surgery, Creighton University School of Medicine.

His military service included assignment to the Medical Corps during the First World War and active duty as Major in the Medical Corps of the U. S. Army since 1943.

Dr Arnold has been a member of the Advisory Board of the Nebraska State Labor Commission; delegate to the International Goiter Conference at Berne, Switzerland (1933); member of the Advisory Board to the Director of the City Health Department; Director of the Nebraska Council of the American Red Cross. He is a member of the American Medical Association, the Lancaster County Medical Association, the American Medical Association of Vienna; the National Military Surgeons Society, the American Association for the Study of Goiter, Member of the Executive Council and Executive Secretary of the United States Chapter of the International College of Surgeons of which he is a Fellow.

From the very inception of the College "Charley" Arnold, as he is lovingly referred to by his colleagues, displayed a deep devotion to its precepts. His host of friends bespeak a well-deserved popularity. His eagerness and sacrifices to enter the armed services, where he is now serving overseas, stamp him as a red-blooded American.

BENJAMIN I. GOLDEN, M.D., F.A.C.S., F.I.C.S.

BORN in 1892 Dr. Golden received his A.B. degree from Tufts College in 1916 and his M.D. from Temple University in 1921. From 1922-27 he acquired his surgical training. Dr. Golden was Professor of Biology at Davis-Elkins College (1925-34) and Lecturer from 1934-39; member (1930-33) and president (1931-33) of the West Virginia State Nurses Board; Associate Surgeon Davis Memorial Hospital (1927-29), Chief Surgeon Davis Memorial Hospital, 1930 to the present; Senior Surgeon, Reserve U. S. Public Health.

Dr. Golden's affiliations are: Fellow of the American Medical Association; Fellow of the American College of Surgeons; Fellow of the International College of Surgeons and Treasurer of the United States Chapter; Fellow of the International College of Anesthetists; member of the Radiological Society of North America. He is a diplomate of the American Board of Surgery.

Benjamin I. Golden, M.D., F.A.C.S., F.I.C.S.

WATSON B. MORRIS, M.D., F.A.C.S., F.I.C.S.

DR. MORRIS was born in Utica, N. Y., in 1878. He was graduated from N. Y. University and Bellevue Medical College. He was interne at Bellevue Hospital for two years and spent the following years studying in foreign clinics. During the First World War he was assigned to duty at Overlook Hospital and after the close of that conflict he was appointed Attending Surgeon to that Institution, a position he still holds.

In 1934 he served as President of the Union County Medical Society and since that time has been a member of its Board of Trustees. In 1937 he was elected 2nd Vice-President of the Medical Society of New Jersey, and in 1940 he was chosen its President. He also served on the Medical Practice Committee. At present he is President of the Board of Governors of the Union County Tuberculosis Hospital and Sanatorium and Secretary of the Surgical Staff of Overlook Hospital.

His medical affiliations are: Fellow of the American Medical Association; Fellow of the American College of Surgeons; member of the Alumni Association of Bellevue Hospital, New York; Fellow of the Academy of Medicine of Northern New Jersey; Regent for the 3rd District of the United States Chapter of the International College of Surgeons; Chairman of the Board of Governors of the Unite States Chapter, and Fellow of the College.

Watson B. Morris, M.D., F.A.C.S., F.I.C.S.

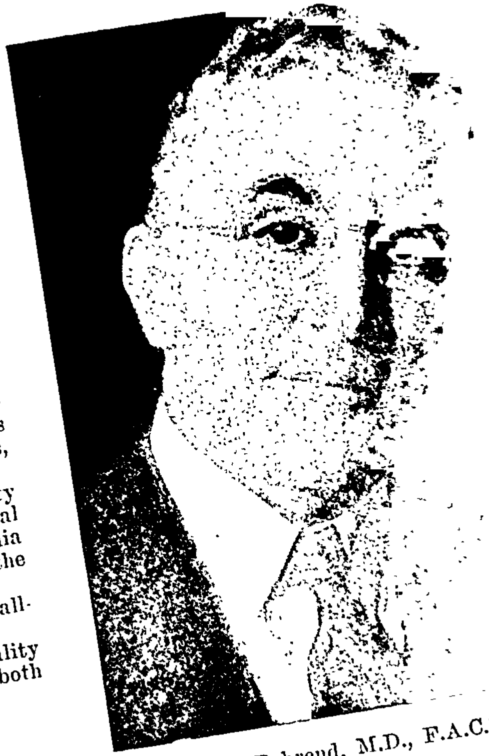
MOSES BEHREND, M.D., F.A.C.S., F.I.C.S.

DR. BEHREND was born June 6, 1877. He was graduated in medicine from the University of Pennsylvania in 1899. He is Attending Surgeon at the Jewish and Mt. Sinai Hospitals and Associate in Surgery at Jefferson Medical College. He is a Fellow of the American Medical Association, of the American College of Surgeons, and of the International College of Surgeons, of whose United States Chapter he is Chairman of the Board of Examiners, and of the College of Physicians of Philadelphia.

Dr. Behrend is a member of the Philadelphia County Medical Society, Pediatric Society and Pathological Society. He is ex-President of the Philadelphia County Medical Society and Medical Society of the State of Pennsylvania.

He is the author of: "Surgical Diseases of the Gall-bladder, Liver, Pancreas and Their Treatment."

Dr. Behrend's geniality, ingratiating personality and devotion to his tasks has endeared him to both colleagues and acquaintances.



Moses Behrend, M.D., F.A.C.S., F.I.C.

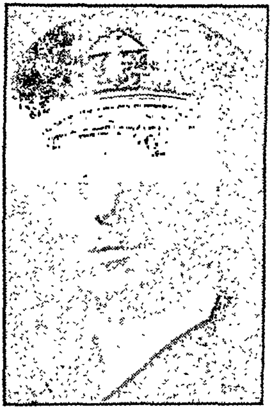
WILLIAM SEAMAN BAINBRIDGE, M.D., F I C S.

DR. BAINBRIDGE was born in 1870. He was graduated in medicine from the College of Physicians and surgeons of New York in 1893. He is consulting surgeon and surgical director to many metropolitan hospitals, including the United States Public Health Service and the New York and *Third Naval Districts. He was captain*, Medical Director, United States Naval Reserve, operating surgeon on the transport *U.S.S. George Washington* during the First World War and did special work at the front lines and in rehabilitation centers in France and England.

He was co-initiator of the International Congress of Military Medicine, Surgery and Sanitation. Official delegate from the Dept. of State of the United States to the Third International Assembly of the International College of Surgeons, Mexico, 1941.

Dr. Bainbridge is a member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; President, American Academy of Physical Medicine; Past-President, Association of Military Surgeons of the United States, Past Commander General, Military Order of Foreign Wars Dr. Bainbridge is Honorary Fellow of the Royal Society of Medicine, England; Royal Academy of Medicine, Belgium; French Society of Gynecology, Society of Surgeons. Paris; Society of Surgeons, Poland; National Academy of Medicine, Venezuela; National Academy of Medicine, Mexico; Academy of Surgery, Peru; Academy of Sciences and Arts, Mexico; Association of Military Surgeons, Mexico. He has been decorated by a number of governments

Dr. Bainbridge is the author of many monographs on cancer, operative technic, abdominal gynecology and thyroid surgery.



William Seaman Bainbridge, M.D., F.I.C.S.

JOHN ROYAL MOORE, M.D , F.A.C.S., F.I.C.S.

DR. MOORE was born Dec. 25, 1899, at Sagerton, Texas. His pre-medical work was completed at Willamette University and his M.D. was obtained from the University of California in 1925. He served his internship at the University of California Hospital and his orthopedic training was acquired at the Shriners' Hospital for Crippled Children, San Francisco (1925-27) and the Piedmont Clinic, Atlanta, Ga. (1927-28).

Dr Moore is at present Chief Surgeon, Shriners' Hospital for Crippled Children, Philadelphia, Pa.; Chief of Orthopedic Service, Temple University Hospital; Professor of Orthopedic Surgery, Temple University Medical School; Orthopedic Surgeon, rotating service, Philadelphia General Hospital; Orthopedic Consultant, Medical Advisory Board, Area No. 1, Pa.

Other affiliations include: Member of Academy of Surgery, Philadelphia, Pa.; Medical Club; Orthopedic Club of Philadelphia; American Medical Association; American Orthopedic Association; Academy of Orthopedic Surgery; Fellow of th [illegible] of Surgeons; Fellow of the I [illegible] Surgeons and [illegible] of the the United [illegible]

John Royal Moore, M.D , F.A.C.S., F.I.C.S.

Custis Lee Hall, M.D., F.A.C.S., F.I.C.S.

CUSTIS LEE HALL, M.D., F.A.C.S., F.I.C.S.

DR. HALL was born July 15, 1888. He was graduated in Medicine from George Washington University in 1912. He was resident physician at Garfield Hospital in 1913; Orthopedic House Officer, Massachusetts General Hospital, 1914-15; Assistant to Dr. E. G. Brackett, Boston, 1916.

His military services included: Orthopedic Surgeon, British Expeditionary Forces, 1917-18; Chief of Orthopedic Service, Base Hospital No. 88, AEF, 1919; Chief of Orthopedic Service, Base Hospital, Camp Sherman, Ohio, 1919.

Dr. Hall began private practice in Washington in 1920. He has been: Prof. of Orthopedic Surgery, George Washington (1920-33); Assistant Professor of Surgery, George Washington Medical School, 1933-37, Clinical Professor of Surgery, George Washington University Medical School, 1938. Orthopedic Surgeon to Garfield, Childrens, Columbia and Emergency Hospitals; Consultant in Orthopedic Surgery, U. S. Veterans Bureau, 1923-38; Chief Orthopedic Consultant, District Health Department.

His membership in organizations include: Fellow of the American College of Surgeons; Fellow and International Trustee of the International College of Surgeons and Member of the Board of Trustees of the United States Chapter, as well as Chairman of the Publication Committee of the *Journal of the International College of Surgeons;* Fellow of the American Academy of Orthopedic Surgeons; Licentiate of the American Board of Orthopedic Surgeons; Vice-President of the Pan American Medical Association and Past President of the Washington, D. C., Pan American Medical Society; Member Washington Academy of Medicine and Washington Academy of Surgery.

BOOK REVIEWS

(Continued from page 468)

sion of various diagnostic and therapeutic aids, such as excretory urography and cystography, radiation therapy, fluid administration, blood transfusion and anesthesia. A useful chapter is given over to the surgical approach to the kidney. Congenital anomalies of the kidney, which provide operative hazards, are carefully depicted. Instructions for each urologic procedure occupy the remainder of the book, including indications and contraindications, use or omission of drainage and each step of the usual operations on the kidneys, ureter, bladder, penis, testes and prostate are described.

The text is readable and concise, the illustrations by Helen Lorraine exceptionally fine. Each chapter concludes with an adequate bibliography, and the book is carefully indexed. It is highly recommended not only to the specialist in urology but to the general surgeon.

Demonstrations of Physical Signs in Clinical Surgery. Hamilton Bailey, F.R.C.S. (Eng.), Surgeon, Royal Northern Hospital, London. Ed. 9. 351 pp., 492 illus. John Wright & Co., Bristol, 1944.

Today, when emphasis in teaching has been so largely placed on various laboratory diagnoses, the surgeon relies all too frequently not on the acumen of his five senses, but on tests which experience has often proved to be fallible, valuable though they are as aids. The history and physical examination, as Hamilton Bailey states in his preface, must always remain the main channels by which a diagnosis is made. From this standpoint the book is an outstanding contribution to the literature.

Bailey stresses the fact that the basic principle of clinical surgery is comparison of an injured or diseased member or side with one that is normal, and lists such basic physical signs as location of pain, local temperature, pitting on pressure, fluctuation, translucency, enlargement of superficial veins, crepitus, pulse, vomit, hiccup and the appearance of the tongue, hands and face.

Individual chapters are devoted to clinical signs manifested in the head, abdomen, extremities, spine, bones and various joints of the body.

The illustrations, some in color, are excellent. The exposition is clear and to the point. A glossary of anatomical terms and thorough indexing make the volume especially valuable to the student. The book is highly recommended to student and clinician alike.

(Continued on page 508)

(Continued from page 502)

Clinics, Vol. II, No. 5, pp. 1077-1341. J. B. Lippincott Co., Philadelphia, Feb., 1944.

THIS issue of the *Clinics* contains a symposium on War Medicine presented at the October 1943 meeting of the Association of Military Surgeons, besides six original contributions on such diversified subjects as "Diagnostic Cardioroentgenography in Army Examinees," "A Simple Walking Cast," "Burns Incident to War-Measures for Their Prevention and Treatment," "Management of Purpura," "Effect of Shock on Intramuscular Pressures," and "Ochronosis." Chemotherapy (Pharmacology and Toxicology and Application and Results), Venereal Disease, Fatigue, Fractures, Plastic and Reconstruction Surgery, War Wounds and Burns and Gastro-Intestinal Disorders from the subjects of the discussions herein reported. In a few instances material presented was edited, in several others it was prepared in advance. For the most part the spontaneity of the panel discussions has been retained. In the discussions on chemotherapy, penicillin and its uses occupied an important place. Building up resistance to fatigue as well as training in relaxation has been stressed in the army. Gastro-intestinal disorders experienced by our men in the South Pacific were reviewed by the panel under the chairmanship of Dr. Andrew Ivy. This volume of informally presented material is of a particularly informative nature for medical men in the Armed Forces.

The Principles and Practice of Medicine. William Osler, edited by Henry A. Christian, Hersey Professor of the Theory and Practice of Physic, Emeritus, Harvard University. Ed. 15. 1498 pp. D. Appleton-Century, New York, 1944.

THE appearance of the 15th edition of Osler's Principles and Practice of Medicine, brought up to date by Henry Christian, is adequate testimony to the intrinsic worth of this ever-popular compendium of medical practices. Newly recognized syndromes and disease have been brought to the attention of the medical profession as the result of the war, notably those transmitted to the States from the tropics. Increase in venereal diseases and deficiency diseases due to food rationing and immigration of undernourished individuals is allotted adequate space in this edition. Functional diseases of the nervous system, infectious diseases, diseases due to parasites, insect and reptile bites, diseases due to physical agents, intoxications and metabolic disturbances are discussed at length. The merits of penicillin in pyogenic infections and syphilis and of the sulfa [illegible]iazole, sulfadiazine, [illegible] and sulfasuxidine— [illegible]rought to the attention of the reader. No unnecessary details are given and the approach is strictly clinical. The unillustrated volume is solidly packed with facts.

Surgical Clinics of North America. August, 1943. Vol. 23, No. 4. 304 pp. Cloth, $16. Paper, $12. Issued serially, every other month (6 consecutive bimonthly issues). W. B. Saunders Co., Philadelphia, 1943.

THE Mayo Clinic Number, announced as a symposium on orthopedic surgery, treats also such diversified topics as Influence of Diet on Experimental Hepatitis, Experimental Studies on the Motor Mechanism of the Small Intestine, Extraperitoneal Resection for Cancer of Colon, Intraperitoneal Chemotherapy, Gramacidin and Penicillin, Sutures in Hernia Repair, and anesthesia. The "Technic of Thyroidectomy" by Dixon is particularly timely and of practical value. It gives food for thought to those who believe in removing all of the thyroid tissue (Hertzler et al) and to some who routinely expose the recurrent laryngeal nerve (Lahey et al) Fig. 304 on page 1088 is in distinct contradistinction to the teachings alluded to. The paper by Chas. W. Mayo and Richard A. Twyman on "Extraperitoneal Resection with Temporary Catheter Colostomy for Cancer of the Colon below the Splenic Flexure," also offers food for thought. Among the great many methods advocated for the treatment of malignancies of the large bowel, one might do well to study this procedure in evaluating these teachings with the methods which have followed a certain classicism in contemporary literature. On the whole, this number is excellent and contains much that is worth while.

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THE JOURNAL OF THE INTERNATIONAL COLLEGE OF SURGEONS

Index, Volume VII, January-December, 1944

By Titles and Authors

INDEX TO ARTICLES

Abnormalities of the Female Genitalia (Weintrob) (Sept.-Oct.) 381
Activities of the Veterans Administration (Hines) (May-June) 171
Administrative Procedures in the Handling of the Discharge of Disabled Service Men (Sanders) (July-Aug.) 263
Adult Tissue Extracts in Promotion of Wound Healing (Mandl) (Jan.-Feb.) 34
Anesthesia during the Circumstances of War (Rovenstine) (July-Aug.) 301
Anesthesia in War Surgery (Graña) (May-June) 175
Appendiceal Coprolith Simulating Ureteral Calculus (Coleman) (Sept.-Oct.) 397
Apreciaciones sobre la Pelvis de la Mujer Oaxaquena (Landero) (Mar.-Apr.) 144
Argumosa's Two Methods of Blepharoplasty (Márquez) (Jan.-Feb.) 63
Army Rehabilitation (Gorman) (Sept.-Oct.) 370

Blast (Bailey) (July-Aug.) 257
Blast Injuries (Hogan) (May-June) 193
Blepharoplasty, Argumosa's Two Methods of (Márquez) (Jan.-Feb.) 63
BOOK REVIEWS
  Arthoplastia del Codo. Oscar Busto (May-June) 256
  Cataract and Anomalies of the Lens. John G. Bellows (Sept.-Oct.) XI
  Chemotherapy of Gonococcic Infections. Russell D. Herrold (Jan.-Feb.) 81
  China's Health Problems. Szeming Sze (Sept.-Oct.) 422
  Clinical Diagnosis by Laboratory Examination. John A. Kolmer (Mar.-Apr.) 169
  Demonstrations of Physical Signs in Clinical Surgery. Hamilton Bailey (Nov.-Dec.) 502
  Dental Treatment of Maxillo-Facial Injuries. W. Kelsey Fry (Nov.-Dec.) 468
  Dental Vocabulary. Joseph S. F. Marie (Jan.-Feb.) 83
  Emergency Surgery. Hamilton Bailey (July-Aug.) 334
  Enjoyment of Art in America. Regina Schoolman (Sept.-Oct.) XI
  Essentials of Gynecology. Willard R. Cooke (Jan.-Feb.) 83
  History of Surgery. Richard A. Leonardo (Jan.-Feb.) 82
  Intracranial Arterial Aneurysms. Walter E. Dandy (July-Aug.) 335
  Kinetic Bandaging. Seymour W. Meyer (Mar.-Apr.) 170
  Man in Structure and Function. Fritz Kahn (Mar.-Apr.) 168
  Medical Clinics of North America. May, 1943. Vol. 27, No. 3 (Jan.-Feb.) 82
  Minor Surgery. Frederick Christopher (May-June) 256
  Pathology and Therapy of Rheumatic Fever. Leopold Lichtwitz (May-June) 256
  Pioneers of Pediatrics. Abraham Levinson (Jan.-Feb.) 82
  Principles and Practices of Inhalational Therapy. Alvan L. Barach (Sept.-Oct.) 422
  Reconstructive Surgery of the Eyelids. Wendell L. Hughes (Nov.-Dec.) 468
  Report by the Minister of Health and the Secretary of State for Scotland on a National health Service (July-Aug.) 334
  Short Practice of Surgery. Hamilton Bailey and R. J. McNeill Love (Jan.-Feb.) 83
  Story of Medicine. Victor Robinson (Jan.-Feb.) 82
  Sulfonamide Therapy in Medical Practice. Frederick G. Smith (May-June) 256
  Sulfanilamidoterapia Local. Juan Nasio (Mar.-Apr.) 169
  Surgery of Modern Warfare. Parts I and II. Hamilton Bailey (Mar.-Apr.) 168
    Parts III and IV (May-June) 255
    Part V (July-Aug.) 335
    Part VI (Sept.-Oct.) 421
  Surgery of Pancreatic Tumors. Alexander Brunschwig (Sept.-Oct.) 422
  Surgical Clinics of North America. April, 1943. Vol. 43, No. 2 (Mar.-Apr.) 169
  Textbook of General Surgery. Warren H. Cole and Robert Elman (May-June) 255
  Trail to Light: A Biography of Joseph Goldberger. Robert P. Parsons (Jan.-Feb.) 81
  Traumatic Injuries of Facial Bones. An Atlas of Treatment. John B. Erich (Mar.-Apr.) .. 1[illegible]
  Treatment of Peptic Ulcer. George B. Heuer (Sept.-Oct.) 421
  Urological Surgery. Austin I. Dodson (Nov.-Dec.) 468
  Varicose Veins, Hemorrhoids and Other Conditions; Their Treatment by Injection. R. Rowdon Foote (Nov.-Dec.) 468
  Vascular Responses in the Extremities of Man in Health and Disease. David I. Abramson (May-June) 255
  War Endocrinology. James H. Hutton (Sept.-Oct.) 422
  War Wounds and Injuries. Rodney Maingot, E. G. Slesinger and Ernest Fletcher (Mar.-Apr.) 168
  White Blood Cells Differential Tables. T. R. Waugh (May-June) 255

Cáncer del Recto, Tratamiento Electroquirúrgico del (Roffo) (May-June)........ 202
Cerebral Injuries (Garibay) (Jan.-Feb.)........ 24
Cerebro-Spinal Fluid Fistula, Transplantation of Omentum in Closure of (Mandl) (May-June). 219
Cesarea Extraperitoneal en Distocias Provocadas por las Partes Blandas de la Pelvis y en Mujeres Infectadas. Part I. (Gastélum) (Sept.-Oct.) 355
Cholecystitis, Acute (Mainzer) (May-June)........ 241
Chinese Army Surgeon, Difficulties of (Liu) (Jan.-Feb.) 72
Cirugía Arquitectónica de los Huesos (Tirado) (Jan.-Feb.) 15
Classification of War Wounds (Hughes) (July-Aug.) 275
Conservation of Man Power for War (Corbusier) (Mar.-Apr.) 108
Crush Syndrome (Bailey) (Sept.-Oct.)........ 343

Dacriocistorrinostomía, Técnica Simplificada para la (Estrada) (Mar.-Apr.)........ 147
Desgarro Total de la Cara Posterior e Inferior de la Vejiga Fistula Rectovaginal (Pavlovsky) (July-Aug.) 308
Difficulties of a Chinese Army Surgeon (Liu) (Jan.-Feb.) 72
Dr. William Henry Welch (Kagan) (Mar.-Apr.) 133

Editorials
"Age Limit" Again (July-Aug.)........ 315
Antireticular Cytotoxic Serum (Mar.-Apr.)... 161
"Atlantic Charter" of the International College of Surgeons (Nov.-Dec.)........ 477
Changing Trends in Suture Material (Sept.-Oct.) 441
Do Urinary Antiseptics Cure Urologic Conditions? (Jan.-Feb.) 69
Following the Path of Aesculapius (Nov.-Dec.) 478
Making of a Surgeon (May-June)........ 248
Postoperative Prognosis in Tumors of the Adrenal Cortex (Jan.-Feb.)........ 69
Post-War International Coöperation (Mar.-Apr.) 160
Prevention and Treatment of Experimental Renal Obstruction from Sulfadiazine (Sept.-Oct.) 412
Ribbon Cut in Surgery (May-June)........ 249
Russian Army Medical Personnel on the Battlefield (Sept.-Oct.) 414
Sulfacetimide in Urinary Tract Infection (July-Aug.) 316
Taking Stock of Ourselves (Sept.-Oct.)........ 409
Elbow Joint, Nearthrosis Following Comminuted Fracture of (Mandl) (Sept.-Oct.)........ 362
Embolism, Treatment of Surgical Shock and (Allen) (Nov.-Dec.) 423

Female Genitalia, Abnormalities of (Weintrob) (Sept.-Oct.) 381
Fibroma, Sarcomatous Degeneration of (Tractenberg) (Mar.-Apr.) 134
Field Surgery, Observations on (Lebedenko) (Mar.-Apr.) 92
Foreign Bodies, Localization of (Brailsford) (Mar.-Apr.) 85
Fractures of the Long Bones, A Self-Aligning Method of Treating (Anderson) (Jan.-Feb.).. 1
Free Muscle Transplantation in the Restoration of Lips and Cheeks (Prudente (July-Aug.)... 312
Functional Liver Tests, Present Status of (Wilensky) (Jan.-Feb.) 50

Gas Casualties (Waitt) (July-Aug.)........ 296
Gastro-Intestinal Tract, Surgical Significance of the Anatomical Layers of the (Burket) (Nov.-Dec.) 462

Hypernephroid Tumor of the Right Kidney, with a Metastatic Lesion in the Right Scapula (Nagel) (May-June) 235

Injuries, Cerebral (Garibay) (Jan.-Feb.)........ 24
Intra-Abdominal Calcareous Tumors (St. Loup B.) (Nov.-Dec.) 452

Leukemia, Paint-Splash Cervix in (Weintrob) (Mar.-Apr.) 98
Lips and Cheeks, Free Muscle Transplantation in the Restoration of (Prudente) (July-Aug.)... 312
Localization of Foreign Bodies (Brailsford) (Mar.-Apr.) 85

Mediastinal Wounds Caused by Explosives (Erkul) (May-June) 200
Modificación a la Técnica de Neumoventriculografía (Vázquez) (Jan.-Feb.)........ 28
Muscle Reinervation (Billig) (Nov.-Dec.)........ 457
Muscles, Trunk and Leg, Restoration of Walking Capacity after Paralysis of (Spira) (Jan.-Feb.) 59

Nature of Medical Organization (Fishbein) (Nov.-Dec.) 471
Naval Medical Research in Wartime (Mann) (Sept.-Oct.) 349
Nearthrosis Following Comminuted Fracture of the Elbow Joint (Mandl) (Sept.-Oct.)........ 362
Neumoventriculografía, Modificación a la Técnica de (Vázquez) (Jan.-Feb.)........ 28
Nueva Técnica de Toracoplastia por Vía Axilar (Soto) (Sept.-Oct.) 377

Observations on Field Surgery (Lebedenko) (Mar.-Apr.) 92
Omentum, Transplantation of in Closure of Cerebro-Spinal Fluid Fistula (Mandl) (May-June) 219

Paint-Splash Cervix in Leukemia (Weintrob) Mar.-Apr.) 98
Paralysis of Trunk and Leg Muscles, Restoration of Walking Capacity after (Spira) (Jan.-Feb.) 59
Physical Medicine and the Rehabilitation Problem (McFee) (Sept.-Oct.) 402
Praeputium Skin in "Structive" Surgery, Use of (Esser) (Nov.-Dec.) 469
Present Status of Functional Liver Tests (Wilensky) (Jan.-Feb.) 50
Present Treatment of Wounds and Burns (Hayden) (May-June) 179
Prostatic Hypertrophy, Testicular Hormones and Their Influence on (Kook) (Mar.-Apr.)...... 129
Pseudotumors in the Synovial Membrane of the Knee Joint, on the Occurrence of (Milwidsky) (May-June) .... 2[illegible]

Raquí-Analgesia Generalizada, La (Fierro) (May-June) 221
Rehabilitation, or the Salvaging of Man Power (Albee) (Sept.-Oct.) 337
Rehabilitation Problem, Physical Medicine and (McFee) (Sept.-Oct.) 402
Respiratory System, Surgical Treatment of Tuberculous and Malignant Diseases of the (Griffith) (Jan.-Feb.) 9
Restoration of Walking Capacity after Paralysis of Trunk and Leg Muscles (Spira) (Jan.-Feb.) 59

Sarcomatous Degeneration of Fibroma (Tractenberg) (Mar.-Apr.) 134
Self-Aligning Method of Treating Fractures of the Long Bones (Anderson) (Jan.-Feb.) 1
Shock (Craig) (Mar.-Apr.) 103
Shock, Surgical, and Embolism, Treatment of (Allen) (Nov.-Dec.) 423
Skull and Brain, War Wounds of (Colmers) (Mar.-Apr.) 116
Surgeons and Events (Thorek)
  Dupuytren, Guillaume (Sept.-Oct.) 353
  Guillotin, Joseph-Ignace (July-Aug.) 285
  Larrey, Domonique-Jean, Baron (May-June) .. 191
  Yudin, Sergei S. (Nov.-Dec.) 446
Surgical Significance of the Anatomical Layers of the Gastro-Intestinal Tract (Burket) (Nov.-Dec.) 462
Surgical Treatment of Tuberculous and Malignant Diseases of the Respiratory System (Griffith) (Jan.-Feb.) 9
Suturing Infected Wounds of the Face (Guilbert) (Jan.-Feb.) 44

Técnica Simplificada para la Dacriocistorrinostomía (Estrada) (Mar.-Apr.) 147
Testicular Hormones and Their Influence on Prostatic Hypertrophy (Kook) (Mar.-Apr.) .. 129
Thoracic Injuries in Combat Zone (Shaar) (Sept.-Oct.) 365
Toracoplastia por Vía Axilar, Nueva Técnica de (Soto) (Sept.-Oct.) 377
Transplantation of Omentum in Closure of Cerebro-Spinal Fluid Fistula (Mandl) (May-June) 219
Tratamiento Electroquirúrgico del Cáncer del Recto (Roffo) (May-June) 202
Treatment of Surgical Shock and Embolism (Allen) (Nov.-Dec.) 423
Tuberculous and Malignant Diseases of the Respiratory System, Surgical Treatment of (Griffith) (Jan.-Feb.) 9
Tumors, Intra-Abdominal Calcareous (St. Loup B.) (Nov.-Dec.) 452

Ulcerative Leiomyoma of the Stomach (Behrend)) (Nov.-Dec.) 436
Ulcus Callosum Recti (Hochenegg) (Mandl) (Nov.-Dec.) 447
Use of Plasma, Whole Blood and Human Serum Albumin by the Armed Forces (Kendrick) (July-Aug.) 289

Veterans Administration, Activities of (Hines) (May-June) 171

War Surgery, Anesthesia in (Graña) (May-June) 175
War Wounds, Classification of (Hughes) (July-Aug.) 275
War Wounds of the Skull and Brain (Colmers) (Mar.-Apr.) 116
Wound Healing, Adult Tissue Extracts in Promotion of (Mandl) (Jan.-Feb.) 34
Wounds and Burns, Present Treatment of (Hayden) (May-June) 179
Wounds of the Face, Suturing Infected (Guilbert) (Jan.-Feb.) 44

INDEX TO AUTHORS

Albee, Fred H.: Rehabilitation, or the Salvaging of Manpower (Sept.-Oct.) 337
Allen, Frederick M.: Treatment of Surgical Shock and Embolism (Nov.-Dec.) 423
Anderson, Roger: A Self-Aligning Method of Treating Fractures of the Long Bones (Jan.-Feb.) 1

Bailey, Hamilton: Blast (July-Aug.) 257
— Crush Syndrome (Sept.-Oct.) 343
Behrend, Moses: Ulcerative Leiomyoma of the Stomach (Nov.-Dec.) 436
Billig, Lt. Comdr. Harvey E., Jr.: Muscle Reinnervation (Nov.-Dec.) 457
Brailsford, James F.: Localization of Foreign Bodies (Mar.-Apr.) 85
Burket, Walter C.: Surgical Significance of the Anatomical Layers of the Gastro-Intestinal Tract (Nov.-Dec.) 462

Coleman, W. G.: Appendiceal Corprolith Simulating Ureteral Calculus (Sept.-Oct.) 397
Colmers, Franz A.: War Wounds of the Skull and Brain (Mar.-Apr.) 116
Corbusier, Harold D.: Conservation of Man Power for War (Mar.-Apr.) 108
Craig, W. M.: Shock (Mar.-Apr.) 103

Erkul, Emin: Mediastinal Wounds Caused by Explosives (May-June) 200
Esser, J. F. S.: Use of Praeputium skin in "Structive" Surgery (Nov.-Dec.) 469
Estrada, A. Torres: Técnica Simplificada para la Dacriocistorrinostomía (Mar.-Apr.) 147

Fierro, Darío Fernández: La Raquí-Analgesia Generalizada (May-June) 221
Fishbein, Morris: Nature of Medical Organization (Nov.-Dec.) 471

Garibay, Manuel Sánchez: Cerebral Injuries (Jan.-Feb.) 24
Gastélum, Bernardo J.: Cesarea Extra-peritoneal en Distocias Provocadas por las Partes Blandas de la Pelvis y en Mujeres Infectadas. Part I. (Sept.-Oct.) 355
Gorman, Lt. Col. Cornelius E.: Army Rehabilitation (Sept.-Oct.) 370

Grana, Francisco: Anesthesia in War Surgery (May-June) 175
Griffith, Chas. M.: Surgical Treatment of Tuberculous and Malignant Diseases of the Respiratory System (Jan.-Feb.) 9
Guilbert, Henry D.: Suturing Infected Wounds of the Face (Jan.-Feb.).................... 44

Hayden, Capt. Reynolds: Present Treatment of Wounds and Burns (May-June).......... 170
Hines, Brig. Gen. Frank T.: Activities of the Veterans Administration (May-June)........ 171
Hogan, Comdr. Bartholomew W.: Blast Injuries (May-June) 193
Hughes, Basil: Classification of War Wounds. (July-Aug.) 275

Kagan, Solomon R.: Dr. William Henry Welch (Mar.-Apr.) 133
Kendrick, Lt. Col. Douglas B., Jr.: Use of Plasma, Whole Blood and Human Serum Albumin by the Armed Forces (July-Aug.)....... 289
Kook, N.: Testicular Hormones and Their Influence on Prostatic Hypertrophy (Mar.-Apr.). 129

Landero, Manuel Canseco: Apreciaciones sobre la Pelvis de la Mujer Oaxaquena (Mar.-Apr.) 144
Lebedenko, Vladimir V.: Observations on Field Surgery (Mar.-Apr.) 92
Liu, J. Heng: Difficulties of a Chinese Army Surgeon (Jan.-Feb.) 72

McFee, William D.: Physical Medicine and the Rehabilitation Problem (Sept.-Oct.)...... 402
Mainzer, Major Francis S.: Acute Cholecystitis (May-June) 241
Mandl, Felix: Adult Tissue Extracts in Promotion of Wound Healing (Jan.-Feb.)....... 34
— Nearthrosis Following Comminuted Fracture of the Elbow Joint (Sept.-Oct.)............. 362
— Transplantation of Omentum in Closure of Cerebro-Spinal Fluid Fistula (May-June).... 219
— Ulcus Callosum Recti (Hochenegg) (Nov.-Dec.) 447
Mann, Rear Admiral William L.: Naval Medical Research in Wartime (Sept.-Oct.)........ 349
Márquez, M.: Argumosa's Two Methods of Blepharoplasty (Jan.-Feb.) 63
Milwidsky, H.: On the Occurrence of Pseudotumors in the Synovial Membrane of the Knee Joint (May-June) 227

Nagel, Charles Edward: A Hypernephroid Tumor of the Right Kidney, with a Metastatic Lesion in the Right Scapula (May-June)..... 235

Pavlovsky, Alejandro J.: Desgarro Total de la Cara Posterior e Inferior de la Vejiga Fistula Rectovaginal (July-Aug.)........... 308
Prudente, Antonio: Free Muscle Transplantation in the Restoration of Lips and Cheeks (July-Aug.) 312

Roffo, Angel H Tratamiento Electro-quirúrgico del Cáncer del Recto (May-June)....... 202
Rovenstine, E A.: Anesthesia during the Circumstances of War (July Aug.)............. 301

St. Loup B., Enrique: Intra-abdominal Calcareous Tumors (Nov.-Dec.) 452
Sanders, Col. Lewis: Administrative Procedures in the Handling of the Discharge of Disabled Service Men (July-Aug.).......... 263
Shaar, C. M.: Thoracic Injuries in Combat Zone (Sept.-Oct.) 365
Soto, Mario Vergara Nueva Técnica de Toracoplastia por Via Axilar (Sept.-Oct.)....... 377
Spira, E.: Restoration of Walking Capacity after Paralysis of Trunk and Leg Muscles (Jan.-Feb.) 59

T[illegible]
d [illegible] 15
Tr[illegible]
Fibroma (Mar.-Apr.) 134

Vázquez, M.: Una Modificación a la Técnica de Neumoventriculografía (Jan.-Feb.)....... 28

Waitt, Brig. Gen. Alden H.: Gas Casualties (July-Aug.) 206
Weintrob, Lt. [illegible]
the Female [illegible] 391
— Paint-Splas[illegible] 98
Wilensky, Abraham O.: Present Status of Functional Liver Tests (Jan.-Feb.).......... 50

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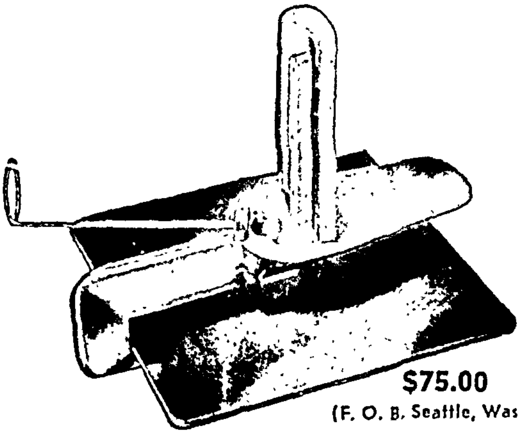

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